PB89-188726

Superfund Record of Decision (EPA Region 7)
Midwest Manufacturing/North Farm Superfund Site
North Farm Operable Unit, Kellogg, Iowa
(First Remedial Action), September 1988

(U.S.) Environmental Protection Agency
Washington, DC

30 Sep 88

U.S. Department of Commerce
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EPA/ROD/R07-88/019
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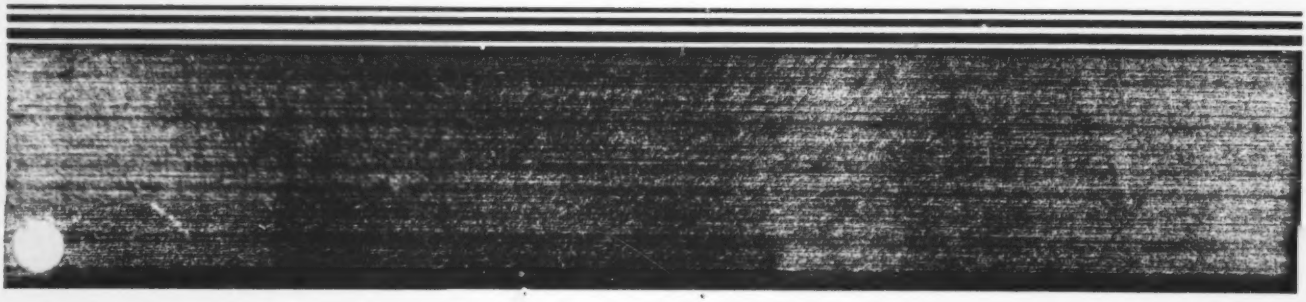
EPA

Superfund Record of Decision:

Midwest Manufacturing, IA



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15. Supplementary Notes

16. Abstract (Limit: 200 words)

The North Farm operable unit is one of two subsites of the Midwest Manufacturing site and is located in a rural area approximately two miles north and one-half mile east of Kellogg, Jasper County, Iowa. Approximately 600 people live in Kellogg. Land use near the site is mainly agricultural, with pasture land on and around the site. The closest residence to the North Farm subsite is within one mile. The subsite consists of an unlined disposal cell containing approximately 200 yd^3 of soil contaminated with electroplating wastes. The disposal cell is located on the lower slope of a rolling hill adjacent to the valley of Bear Creek, which is an intermittent stream located 500 feet east and 50 feet lower than the site. Records indicate that electroplating activities took place at this site until June 1981, when the facility ceased operations. The start date for activities at the site is unknown. Activities involved the use of various heavy metals, including cadmium, nickel and zinc, as well as cyanide. In 1977, a wastewater treatment plant was installed at the facility to treat the plant effluent before it was discharged into the local river. Solids generated at the treatment plant were temporarily stored in a tank onsite and periodically transferred to the disposal cell. The disposal cell was unlined and had no soil cap, leachate collection system or run-on and run-off controls. Soil sampling was conducted
(See Attached Sheet)

17. Document Analysis a. Descriptors

Record of Decision
Midwest Manufacturing, IA
First Remedial Action
Contaminated Media: soil
Key Contaminants: cadmium, cyanide

b. Identifiers/Open-Ended Terms

c. COSATI Field/Group

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EPA/ROD/R07-88/019
Midwest Manufacturing, IA
First Remedial Action

16. ABSTRACT (continued)

onsite and downslope of the site in 1982 and 1983 to evaluate the potential for offsite contaminant migration due to previous waste disposal practices. Analysis of the samples revealed that soil contamination had occurred via surface run-off. The primary contaminants of concern affecting the soil are cadmium and cyanide.

The selected remedial action for this operable unit includes: excavation of the contaminated soil within and around the disposal cell and either onsite or offsite treatment using stabilization, with offsite disposal of the treated soil at a permitted RCRA Subtitle C disposal facility; and backfilling and grading of the excavated area with clean soil to support a vegetative cover. The estimated total present worth cost for this remediation is $140,000 - $170,000. The remedial action for the Midwest Manufacturing operable unit of this site will be addressed in a subsequent ROD.

RECORD OF DECISION

DECLARATION

Midwest Manufacturing/North Farm Site

Kellogg, Iowa

Prepared By:

U.S. Environmental Protection Agency

Region VII

Kansas City, Kansas

September 1988

Record of Decision
North Farm Operable Unit
Declaration

SITE NAME AND LOCATION

Midwest Manufacturing/North Farm Superfund Site. North Farm Operable Unit; Kellogg, Iowa.

STATEMENT OF BASIS AND PURPOSE

This decision document presents the selected remedial action for the North Farm Operable Unit of the Midwest Manufacturing/ North Farm Superfund site located in Kellogg, Iowa. The response action for the Midwest Plant site portion of the Midwest Manufacturing/North Farm Superfund site will be addressed in another decision as a separate operable unit. This decision document was developed in accordance with the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), as amended by the Superfund Amendments Reauthorization Act (SARA) of 1986 and, to the extent practicable, the National Contingency Plan. The selection of the preferred remedial alternative is based on the information contained in the Administrative Record for this site. The attached index identifies the items that comprise the Administrative Record. Also attached is a letter of concurrence from the State of Iowa for the preferred remedial alternative. A copy of this letter has been included in the Administrative Record for this subsite.

DESCRIPTION OF SELECTED REMEDY

The North Farm Operable Unit is one of two subsites within the Midwest Manufacturing/North Farm Superfund site. This site has been divided into two operable units; the North Farm site and the Midwest Plant site. This decision document addresses the contaminants located at the North Farm Operable Unit. A separate decision document will address the contaminants at the Midwest Plant site.

The selected remedy provides for the excavation of the contaminated soil within and around the disposal cell which contains cadmium concentration levels exceeding the health-based action level of 13 milligrams/kilogram (mg/kg). The contaminated soil will be treated using stabilization technology to achieve levels in accordance with the Best Demonstrated Available Technologies. The treated soils will be disposed in a RCRA Subtitle C disposal facility. The excavated area will be backfilled and graded with clean soil to support a vegetative cover.

DECLARATION

Consistent with the Comprehensive Environmental Response, Compensation and Liability Act of 1980, as amended, I have determined that the selected remedy described above, is cost-effective, protective of human health and the environment and utilizes permanent solutions and alternate treatment technologies to the maximum extent practicable. The remedy selection procedure of the selected remedial action complies with the provisions of CERCLA and the National Contingency Plan, 40 CFR Section 300.

Morris Kay
Regional Administrator

9-30-88
Date

RECORD OF DECISION

DECISION SUMARY

Midwest Manufacturing/North Farm Site

Kellogg, Iowa

Prepared By:

U.S. Environmental Protection Agency

Region VII

Kansas City, Kansas

September 1988

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DECISION SUMMARY
MIDWEST MANUFACTURING/NORTH FARM SUPERFUND SITE
NORTH FARM SUBSITE
KELLOGG, IOWA

I. INTRODUCTION

The purpose of this document is to describe the remedy that the U.S. Environmental Protection Agency (EPA) has selected to implement at the North Farm subsite of the Midwest Manufacturing/ North Farm Site. This document also describes the decision-making procedures that were followed in selecting the preferred remedial action.

This remedial action has been selected to remedy an environmental problem which could potentially affect the health of the residents who may choose to live at the Site in the future. As it is only part of the whole action, this is referred to as an "operable unit" remedial action. Operable units must be consistent with the final remedy for a site and must be cost-effective with the site-wide remedy. In this instance, this is the final remedy selection for the North Farm subsite.

The North Farm operable unit was combined with the Midwest Plant site and proposed for the Superfund National Priorities List (NPL) in September, 1985. The Site became final on the NPL in May, 1986. The NPL is EPA's list of the top priority hazardous waste sites that are eligible for Federal money under the Superfund program.

II. SITE NAME, LOCATION AND DESCRIPTION

Approximately 600 people live in Kellogg, Iowa, which is located in Jasper County, approximately 42 miles east of Des Moines (See Figure 1). The North Farm subsite is located in a rural setting approximately 2 miles north and 1/2 mile east of Kellogg. The land usage near the Site is mainly agricultural with pasture land on and around the Site. The closest residence to the North Farm subsite is approximately 1 mile. The North Farm subsite consists of an unlined disposal cell in which electroplating wastes were disposed. The disposal cell contains approximately 200 cubic yards of soil contaminated with electroplating wastes.

The disposal cell is located on the lower slope of a rolling hill adjacent to the valley of Bear Creek. Bear Creek is an intermittent stream located 500 feet east of the site. The site is approximately 50 feet higher than Bear Creek. Bear Creek flows to the south-southwest of the site for approximately 2 miles and discharges into Coon Creek. Coon Creek continues to flow south for approximately 1/2 mile and discharges into the North Skunk River which runs south of Kellogg (See Figure 2).

SITE LOCATION

The surveyed legal description of the North Farm subsite is as follows: A parcel of land located in the south half of Section 12 and the North half of Section 13 all in Township 80 North, Range 18 West of the Fifth Principal Meridian, Jasper County, Iowa. The North Farm subsite can more particularly be described as follows:

Commencing at the Southwest Corner of Section 12, Township 80 North, Range 18 West of the Fifth Principal Meridian, Jasper County, Iowa;

Thence on an assumed bearing of North 90 degrees 00' 00'' East, 2,637.99 Feet along the south line of said Section 12;

Thence South 01 degrees 00' 50''West, 2.78 Feet to the point of beginning;

Thence North 83 degrees 29' 35'' East, 189.07 Feet;

Thence North 03 degrees 13' 16'' East 202.22 Feet;

Thence South 83 degrees 21' 40'' West, 196.99 Feet;

Thence South 01 degrees 00' 50'' West, 200.58 Feet to the point of beginning containing .882 acres more or less.

III. **SITE HISTORY**

Smith Jones, owner of the Midwest plant subsite, is reported to have engaged in electroplating special order stamped metal pieces. This process involved the use of various heavy metals to coat manufactured products. Cadmium was used prior to 1979, nickel was used until 1980, and zinc was used from 1980 to 1981. All electroplating operations ceased in June, 1981.

In 1977, a wastewater treatment plant was brought on-line to prevent pollutants from being directly discharged into the North Skunk River. The wastewater discharged from the plant was treated with lime and permanganate to precipitate the heavy metals from the waste stream. A polymer was then added to coagulate the solids. The resulting solids were temporarily stored in a tank from which they were periodically removed and placed into a disposal cell.

From approximately 1977 to 1978, solids containing high concentrations of cadmium, nickel and zinc were disposed into an unlined cell located at the North Farm subsite. This unlined cell has no soil cap to limit infiltration of water and does not have a leachate collection system. It also lacks run-on and run-off control or other engineering features which would contain or prevent the release of hazardous substances.

In 1982, soil sampling was conducted at the North Farm subsite by Ecology and Environment (E&E) on behalf of the U.S. EPA. The purpose of the soil sampling was to evaluate the potential for contaminant migration resulting from previous waste disposal practices. Three soil samples were collected from the locations shown in Figure 3. The three samples were analyzed for particle size distribution and cation exchange capacity (CEC). The CEC for the three samples were 6.5, 11.7 and 10.2 milliequivalents per 100 grams of soil. Sand percentages in these samples were 34%, 32% and 23%. It was concluded by the USEPA that additional data was deemed necessary to evaluate contaminant migration. In April 1983 the North Farm subsite was again investigated by E & E on behalf of the U.S. EPA. Eight soil samples were collected downslope from the disposal cell. A background sample was collected approximately 200 yards west of the Site. The samples, excluding the background sample, were composited from hand auger cuttings taken from the surface depth of 4 feet. The samples were analyzed for priority pollutant metals and pH. In general, the metal concentrations detected north and east (downslope) of the trench (sample numbers AQ2701, AQ2702 and AQ2707) were higher than those detected in other sampling locations. It was concluded that the higher concentrations in these samples indicated that some soil contamination had occurred via surface run-off.

ENFORCEMENT ACTIVITIES

The Special Notice procedure of Section 122(e)(1) of CERCLA was followed regarding the Remedial Investigation/Feasibility Study (RI/FS) phase of this project. No Potential Responsible Party made a good faith offer to undertake or finance the RI/FS. Consequently, EPA proceeded to initiate the RI/FS.

IV. COMMUNITY RELATIONS

An announcement was mailed to the parties listed in the community relations plan. This announcement notified the parties of the availability of the Administrative Record, Proposed Plan and other pertinent documents used by the Agency to select the preferred remedy. These parties were also informed that EPA would request comments from the general public beginning September 8, 1988 until September 29, 1988 on all of the remedial alternatives as set forth in the FS.

A public meeting was held on September 21, 1988 in Kellogg, Iowa to receive comments from the public regarding all of the remediation alternatives detailed in the FS report. A responsiveness summary of the public's comments received during the public comment period, including the public meeting, is attached to this Record of Decision. The Administrative Record for this Site has been available for public review at the Newton Public Library in Newton, Iowa; the Kellogg Public Library in Kellogg, Iowa; and the New Brotherhood Building in Kansas City, Kansas. The administrative record includes all documents, such as the Proposed Plan, the RI/FS reports and other relevant

material considered in developing the remedial alternatives for this Site. All community relations activities have been in conformance with the requirements of Section 117 of CERCLA and the National Contingency Plan, 40 CFR Section 300.

V. SITE CHARACTERISTICS

In March 1988, EPA conducted a RI in order to identify the types, quantities and locations of the contaminants in and around the disposal cell. The results of the RI are summarized as follows:

1. Onsite surface soils are contaminated with various levels of heavy metals such as calcium, cadmium and manganese.

2. The contaminated soil within the disposal cell contains various levels of heavy metals such as cadmium, nickel, zinc, sodium, cyanide and calcium. This material also failed the EP Toxicity test for cadmium.

3. Approximately 200 cubic yards of contaminated soil containing cadmium above the health based action level of 13 mg/kg established for cadmium are believed to be present at the Site.

4. According to the Public Health Evaluation (PHE), cadmium bioaccumulates in mammals, particularly in the kidney and liver. Sub-chronic and chronic exposure to cadmium is associated with a number of noncarcinogenic but toxic effects, including kidney damage in humans and experimental animals. Non-carcinogenic toxic effects may result from incidental ingestion of soil, ground water or other media. The USEPA considers cadmium a carcinogen only when inhaled.

5. The ground water beneath the site appears to be a perched water table that has no hydraulic continuity with the Bear Creek alluvium.

6. The contaminant concentration measured in the ground water was at or near the action level of 18 micrograms/liter (ug/l) for cadmium and 7700 ug/l for manganese.

Table numbers 1 through 4 present the type and concentration of the hazardous substances detected in and around the disposal cell. Also, Figure 4 presents the lateral and vertical extent of these contaminants.

VI. SUMMARY OF SITE RISKS

As part of the RI report, a baseline Public Health Evaluation (PHE) was conducted. This examination considers the potential threat to human health and the environment in the absence of any remedial action under both current and future use scenarios. It provides the basis for determining if a remedial action is necessary. Cadmium and manganese were identified as the chemicals of concern for the ground water media. Cadmium and

cyanide were identified as the chemicals of concern for the contaminated soil media. The criteria for selecting the chemicals of concern are as follows:

1. The degree of the toxicity and quantity of the hazardous substance found in the contaminant migration media;

2. Environmental fate and transport mechanisms of the chemical within the specific environmental media;

3. The potential human exposure pathways and the extent of actual or expected exposure;

4. Population at risk;

5. Extent of expected harm and the likelihood of such harm occurring; and

6. Acceptable levels of exposure based upon regulatory and toxicological information.

Under current land use conditions no one is currently being exposed to the contaminants of concern via the migration pathways. Therefore, elevated health risks associated with contaminant exposure are not present. However, under a future use scenario, it is anticipated that the migration pathways, soil and ground water, will be activated. The activation of these migration pathways will serve to elevate the potential risks for adverse health effects in local residents. The exposure scenarios identified for future land use conditions are:

1. Ingestion of ground water;

2. Direct contact with surface soils; and

3. Ingestion of vegetables grown in contaminated soil.

The major conclusions of the PHE are as follows:

1. It is unlikely that the direct contact with contaminated soils by future on-site residents would lead to adverse health effects.

2. Cadmium will leach from the waste material when subjected to the EP Toxicity test. As cadmium leaches from the waste material it will deposit itself into the ground water. The likelihood of future residents installing a drinking water well at the site is low. This is because the expected yield from the well would be from 0 gpm to 1 gpm which is an insufficient amount to support residential needs. However, if such a scenario were to occur, then under a maximum exposure scenario, individuals who would drink this water may experience adverse health effects.

3. Under plausible maximum conditions, adverse health conditions could result for future residents if they ingested

vegetables grown on the contaminated soil at the site.

Table 5 presents the contaminants of concern including their concentration level and health based action level per exposure pathway. The health based action level is the contaminant concentration level above which adverse health effects may be experienced by persons exposed to the contaminant.

RISK CHARACTERIZATION

Health-based action levels were developed for each of the contaminants of concern via each exposure pathway. These action levels were developed using the procedures outlined in "The Superfund Public Health Evaluation Manual", OSWER Directive Number 9285.4-1, October, 1986 and " The Superfund Exposure Assessment Manual", OSWER Directive Number 9285.5-1, October, 1987. Based upon this data in conjunction with the standards of other pertinent Federal and State environmental laws, appropriate response actions can be developed per migration pathway. Results of the RI and PHE discussion indicate that no response action for ground water would be necessary in order to protect the public health and the environment. Also, the RI data and the FS established an action level of 13 mg/kg for cadmium in the soil. The following discussion presents the basis for these conclusions.

GROUND WATER

As is shown on Table 5, an action level of 7700 ug/l was developed for manganese. This value is 5600 ug/l greater than the highest concentration level measured at the Site. Also, manganese received a Hazard Index score which was less than 1. A Hazard Index score of less than 1 indicates that the contaminant does not pose a health risk at its present concentration level. Finally, Table 6 presents the ground water quality criteria developed under other Federal environmental laws. The only criteria exceeded by manganese is the Maximum Contaminant Level (MCL) standard developed under the Safe Drinking Water Act. However, this MCL represents a secondary standard which is established for aesthetic quality only. Adverse health effects in humans would not be expected if this standard is exceeded. Therefore, it is believed that manganese does not represent a potential human health threat at its current concentration level.

It is determined that no action needs be taken to protect ground water with respect to cadmium. This decision is based on the following factors. Cadmium received a hazard index score equal to one, which indicates that it represents a marginal risk to humans who may ingest cadmium contaminated water. As is shown in Table 6, the action level for cadmium is 18 ug/l. This, in turn, is 1 ug/l less than the highest total concentration level found at the Site. It is not considered that this differential is significant, in view of the fact that this level was attained only in one sample, while the balance of the samples were significantly

lower.

In addition, the sample which exceeded the 18 ug/l action level was not filtered prior to analysis, so that the analytical results represent the total cadmium present in the ground water. None of the filtered samples, which represent the dissolved cadmium concentration in the ground water, exceeded the action level. It is believed that the filtered sample provides a better model of drinking water. Monitoring wells, are typically of a different type of construction than wells constructed for drinking water. Consequently, monitoring wells usually produce a greater amount of sediment mixed with the water than is the case for a drinking water wells. Contaminants have a tendency to attach themselves to the sediment. This causes the contaminant concentration measured in an unfiltered (total) sample to be greater than that of a filtered sample. Therefore, the unfiltered contaminant concentration measured in a drinking water well would be similar to that measured in a filtered sample collected from a monitoring well. Cadmium, therefore, would not represent a potential human health threat at its current concentration level.

Finally, the water beneath the Site has been identified in Section 3.1 of the RI as being a perched water table. Such a unit is expected to be recharged only from precipitation, and would not be hydraulically connected to the Bear Creek alluvium. In addition, a drinking water well located in this water table would only produce from 0 to 1 gallons per minute (gpm). This amount is significantly below most residential needs. Therefore, it is unlikely that such a drinking water well would be installed in this water table. Furthermore, at the present time, there are no known users of this ground water. Based upon the low yield, the likelihood that the unit would never be used for any purpose, the low potential for human health risks, a ground water response action is unnecessary.

SOIL

A health-based action level of 13 mg/kg was established for cadmium present in the soil. This action level represents the concentration of cadmium that could be left in the soil at the North Farm subsite without presenting adverse risks to human health. The following soil exposure pathways were evaluated: 1) ingestion of contaminated soil 2) dermal contact with the contaminated soil and 3) the root uptake of cadmium by vegetables and subsequent ingestion of these vegetables. Action levels were developed for each of these exposure pathways. The action level developed for the ingestion of vegetables grown on contaminated soil was found to be the most conservative. Thus, the health based action level for cadmium present in the soil at the North Farm subsite is 13 mg/kg. Section 2 and Appendix A of the Feasibility Study Report contain a more detailed discussion of how this action level was developed.

VII. POTENTIALLY APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS

Section 121(d) of CERCLA provides that the remedial action selected must require, at the completion of the remedial action, a level or standard of control which at least attains the legally applicable or relevant and appropriate standards, requirements, criteria, or limitations of any Federal environmental laws or any more stringent State environmental or facility siting laws. A variety of Federal environmental laws were reviewed as to legal applicability or relevance and appropriateness to the remedial alternatives under consideration at this Site. These laws included the Toxics Substances Control Act, the Safe Drinking Water Act, the Clean Air Act, the Clean Water Act, and the Solid Waste Disposal Act. Of these Federal environmental laws, only the Resource Conservation and Recovery Act (RCRA), as amended, and Hazardous and Solid Waste Amendments (HSWA) of 1984, which are parts of the Solid Waste Disposal Act, were found to be potentially applicable or relevant and appropriate to these remedial alternatives. Review of various State environmental laws and regulations, including those pertaining to solid and hazardous waste management, indicate that the Federal environmental laws are at least as or are more stringent than State Law.

The RCRA, as amended by HSWA of 1984, regulates the generation, transportation, treatment, storage and disposal of defined hazardous waste. Hazardous wastes are defined in 40 CFR Part 261 in two basic ways, which are 1) by the characteristics of the waste and 2) by specific listing of the waste as a hazardous waste. The waste at the North Farm subsite could be classified as RCRA hazardous waste both on the basis of its characteristics, in that it failed the EP Toxicity Test for cadmium, and as a listed hazardous waste, in that the wastes present at the Site are wastewater treatment sludges from electroplating operations (F006). Since the wastes were deposited at the site prior to the effective date of these regulations, the RCRA hazardous waste regulatory requirements would not be applicable if the wastes are left undisturbed at the Site. However, if some action is taken which amounts to generation of hazardous waste, such as excavation of the waste under Alternatives 4 and 5, RCRA's regulatory requirements would be applicable. Furthermore, even though they are not legally applicable to the response action, various aspects of the RCRA hazardous waste management requirements may be relevant and appropriate to the response action.

The principle components of RCRA's hazardous waste management regulations which might be applicable or relevant and appropriate to the response alternatives considered at this site are as follows:

A. <u>RCRA Landfill Closure Standards</u> The RCRA hazardous waste management program requires that, upon closure, hazardous waste management facilities be closed in a manner that (1)

minimizes the need for further maintenance and controls; (2) minimizes or eliminates, to the extent necessary to protect human health and the environment, post-closure escape of contaminants to the ground or surface waters or the atmosphere, and (3) complies with specific closure and post-closure requirements.

Closure and post-closure requirements for landfills include (1) covering the landfill with a final covering which meets certain requirements; (2) long-term maintenance of the cover; (3) and long-term ground water monitoring. Corrective action may be required if the water contaminant levels exceed a health-based action level. Land use and deed restrictions may be placed on the property for an indefinite period of time.

If the contaminant concentrations remaining at the site upon closure are below health based action levels, long-term operation and maintenance, ground water monitoring, and access or deed restrictions may not be required under this option.

B. RCRA Minimum Technology Requirements (MTRs) The RCRA hazardous waste management regulations also impose specific requirements on new hazardous waste management facilities, new units at existing facilities, and on replacements of existing units. These requirements would include installation of double liners and a leachate collection system.

C. RCRA Land Ban Disposal Regulations (LBDRs). The Hazardous and Solid Waste Act of 1984 amended RCRA to impose restrictions on the land disposal of hazardous wastes. For purposes of these land disposal regulations, land disposal is defined as "any placement of such hazardous wastes in a landfill, surface impoundment, ..." EPA has promulgated regulations establishing the conditions under which certain listed hazardous wastes, including F006 listed wastes, could continue to be land disposed after August 8, 1988. These conditions include treatment of the wastes to levels achievable by the Best Demonstrated Available Technologies(BDAT). For F006 nonwastewaters, the identified BDAT is stabilization to immobilize the constituents. The BDAT treatment standard is expressed as constituent concentration levels in a Toxicity Characteristic Leaching Procedure (TCLP) extract to reflect whether immobilization has been optimized. The BDAT treatment standard for F006 nonwastewaters is as follows:

Constituent	Treatment Standard
Cadmium	.066 milligrams/liter(mg/l)
Total Chromium	5.2 mg/l
Lead	.51 mg/l
Nickel	.32 mg/l
Silver	.072 mg/l

VIII. DESCRIPTION OF ALTERNATIVES

During the FS, five remedial alternatives were developed based upon screening technologies from three major categories:

biological, chemical and physical treatment. Four process options were identified as being able to attain the clean up standards specified in the potential Applicable or Relevant and Appropriate Requirements (ARAR) section of the FS report. These process options were used to develop the remedial alternatives which are described in detail in the FS. Each of these five alternatives is summarized below.

Alternative #1: No Action

Under this alternative, no specific action would be taken to control the migration of the contaminants at the Site. Institutional controls, such as deed and access restrictions, would be implemented and are included in the evaluation of this alternative. The "no action" alternative is considered as part of the remedial action evaluation at every Superfund site. This alternative acts as a baseline in the risk assessment analysis in evaluating the potential threat to human health in the absence of any remedial action. The "no action" alternative is considered to be appropriate only when there is no increased risk to human health or the environment as a result of past waste management activities.

Alternative #2: RCRA Cap with Ground Water Monitoring

Under Alternative 2, a cap meeting the RCRA closure requirements, 40 CFR Part 264 Subparts G and N, would be placed over the surface of the disposal cell. The purpose of the cap is both to minimize infiltration of surface waters through the wastes and to minimize potential for direct contact with the wastes.

Because the waste was placed in the disposal cell prior to the effective date of the regulations defining the waste as a RCRA hazardous waste (November 19, 1980) and the waste is not being disturbed, the RCRA closure requirements are not legally applicable to this remedial alternative. However, they are considered to be relevant and appropriate requirements for this alternative. Therefore, in addition to the RCRA cap, this alternative would include periodic ground water monitoring to provide information on ground water quality. Institutional controls, including access and deed restrictions, would be utilized for an indefinite period of time. Although not specifically a part of this option, corrective action may be necessary in the future if the contaminant levels in the ground water exceed appropriate action levels.

Alternative # 3: Soil Cap with Ground Water Monitoring

This alternative is similar to Alternative 2 except that a five-foot thick soil cap would be placed over the disposal cell rather than a RCRA cap. The soil cap would serve the same purpose as the RCRA cap in reducing infiltration of surface waters and minimizing potential direct contact with the wastes. A five-foot thickness was selected for this alternative on the basis of the freeze-thaw cycles in the locale of the Site. This alternative

also includes ground water monitoring and the use of access and deed restrictions for an indefinite period of time. As with Alternative 2, future corrective action is a possibility if contaminant levels increase in the ground water, but is not a specific part of this alternative.

As discussed above for Alternative 2, while not legally applicable to this remedial alternative, the RCRA Landfill Closure Standards are considered to be relevant and appropriate requirements for remediation scenarios relying solely on capping technology to contain the hazardous substances. To the extent the soil cap does not satisfy the RCRA closure requirements, this alternative would not comply with identified relevant and appropriate requirements as identified by the Agency.

Alternative # 4: Excavation, Solidification and Redisposal of Existing Contaminated Material with Ground Water Monitoring

Alternative 4 provides for the excavation of the contaminated soil within and around the disposal cell which contains cadmium concentration levels exceeding a health based action level of 13 mg/kg. Cadmium concentrations in soil at levels below the health-based action level do not pose a risk to human health or the environment. In order to achieve a cost-effective remedial action, only soil contaminated at levels which would present a public health or an environmental threat will be removed. Approximately 200 cubic yards of contaminated soil above the health based action level is believed to be present at the Site. The excavated soil would be treated using stabilization technology to achieve compliance with the BDAT treatment standard for F006 nonwastewaters. After treatment, the excavated soil would be placed back into the existing disposal cell.

RCRA as amended by the HSWA established new minimum technology requirements (MTRs) for land disposal units. If new landfills or surface impoundments are constructed, or if replacements or lateral expansions of existing landfills or surface impoundments are used, they must satisfy these minimum technical requirements. Replacement occurs if a unit is emptied and reused. Reuse occurs if original waste is removed from a unit and a different waste either treated or untreated from other units is put into the unit. If a waste is removed from a unit, treated, and put back into the same unit, replacement does not occur. Therefore, the MTRs would not be applicable to this remediation scenario. However, the Agency has identified these standards as being both relevant and appropriate to this alternative. The following components of the MTRs would be incorporated into this alternative: 1) double liners and 2) a leachate collection system to be installed into the existing disposal cell.

RCRA's Landfill Closure Requirements (LCRs) would also be applicable to this remedial alternative. Therefore, a surface cap which meets the specification of RCRA would be placed over the disposal cell, ground water monitoring would be conducted at scheduled intervals and access and deed restrictions would be

placed on the property for an indefinite period of time. Corrective action, which may also be necessary in the future if contaminant levels in the ground water exceed an appropriate action level, is not specifically a part of this remedial alternative.

Alternative 5: Excavation, Solidification, and Offsite Disposal of Contaminated Materials

This alternative provides for the excavation of the contaminated soil within and around the disposal cell which contains cadmium concentration exceeding a health-based action level of 13 mg/kg. As with Alternative 4, above, it is estimated that 200 cubic yards of contaminated soil would be excavated under this alternative. The excavated soil will be treated to achieve the BDAT standard using stabilization technology and transported off-site for disposal in a RCRA regulated facility. The treatment process may be conducted either on- or off-site. The excavated area would be backfilled and graded with clean soil to support a vegetative cover.

This alternative represents RCRA's Landfill Clean Closure Option as defined in 40 CFR Part 264, Subpart N. A leachate collection system would not be installed prior to backfilling the disposal cell with clean soil and a RCRA cap would not be placed over the disposal cell. No post-closure care, such as long term ground water monitoring and access or deed restrictions would be required.

IX. SUMMARY OF THE COMPARATIVE ANALYSIS OF ALTERNATIVES

Section 121 (b)(1) of CERCLA provides that the President shall select a "remedial action that is protective of human health and the environment....and utilizes permanent solutions....to the maximum extent practicable." Section 121 (b)(1) further provides that remedial actions which include treatment measures to permanently and significantly reduce the mobility of the hazardous substances, pollutants, and contaminants are preferred over remedial actions which do not include such treatment measures. Section 121(b)(2) provides that a remedial action which meets these criteria may be selected whether or not such remedial action has been achieved in practice at any other facility or site that has similar characteristics. Thus, each of the alternatives listed in section 7 of this document was evaluated using the criteria listed below. Table 4 summarizes the evaluation criteria versus the proposed remedial alternatives.

1. PROTECTION OF HUMAN HEALTH AND THE ENVIRONMENT

Protection of human health and the environment pertains to how risks are eliminated, reduced, or controlled through treatment, engineering controls, or institutional controls. All of the alternatives evaluated in the FS would provide some degree of protection to the public health and the environment. However, the degree of protection and permanence of the protectiveness

vary between the alternatives.

The "No Action" alternative is considered as part of the remedial action at every Superfund site. It serves as a baseline in the risk assessment analysis in evaluating the potential threat to human health in the absence of any remedial action. This alternative would rely upon institutional controls, such as deed and access restrictions, to minimize human contact with the contaminants. However, no affirmative steps would be taken to prevent such contact or to reduce the migration of contaminants off-site.

Alternatives 2 and 3 would provide a a greater degree of protection to the human health and the environment by taking affirmative action to reduce the potential for contact with the contaminated soils and reducing migration of contaminants by minimizing surface water infiltration through the wastes. Over the long term, the degree of protection to human heath and the environment would depend largely on the quality of maintenance provided for the cap.

Alternative 4, by providing treatment to reduce the mobility of the contaminants and other affirmative controls, would provide a higher degree of protection than would alternatives 1, 2, or 3, which also involve leaving contaminants on-site above the 13 mg/kg health-based action level for cadmium. Long-term ground water monitoring and maintenance would be necessary to maintain the reliability of this alternative.

The excavation and off-site disposal of the contaminated soil under Alternative 5 would provide the highest degree of protection for human health in that all contaminants in the soil above health-based standards would be removed from the site.

2. COMPLIANCE WITH APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS

Alternatives 2, 4, and 5 would achieve all applicable or relevant and appropriate requirements, whereas alternatives 1 and 3 would not.

3. REDUCTION OF TOXICITY, MOBILITY OR VOLUME

Section 121(b) of CERCLA states that remedial actions involving treatment, which permanently and significantly reduce the volume, mobility or toxicity of hazardous materials, are to be preferred over those not involving such treatment. This evaluation criteria relates to the ability of a remedial alternative to control or eliminate risks caused by the mobility, toxicity or volume of a hazardous waste.

Alternative number 1 would have no direct impact on the toxicity, volume or mobility of the hazardous substances at the North Farm subsite. Alternatives number 2 and 3 propose to rely solely on capping technology to contain the hazardous substances at the

Site. The capping of the waste would do nothing to reduce the toxicity, or volume of the hazardous substances since contaminants would remain at their current levels. However, the mobility of the contaminants would be minimized by the reducing the flow of ground water flow through the waste, but the leaching of the contaminants into the ground water would continue. However, this would be at a reduced rate compared to what would be expected under the "No Action" scenario. The amount of water that would filter through the wastes would be a function of the cap's integrity. As the cap erodes with time, the amount of water flowing through the the cap which could generate leachate will increase. Thus, the potential for ground water contamination will increase. The RCRA cap would provide a greater degree of protection against the infiltration of the water through the waste than what could be expected from the soil cap.

Alternative number 4 would use stabilization treatment technology to reduce the mobility of cadmium in the soil. This alternative proposes using stabilization technology in conjuntion with a RCRA cap, liner and leachate collection system. This alternative would do nothing to reduce the toxicity or volume of the hazardous substances at the Site. However, it would provide the greatest degree of protection against contaminant migration when compared to the other alternatives which proposed on site waste management. Also, stabilization technology has been identified as the BDAT for treating wastewater sludges generated from electroplating operations (see the Land Ban Disposal Regulations of August 8, 1988). Assuming current site conditions do not change apreciably, stabilization can be expected to be a long-term solution in retarding the mobility of the contaminants.

Alternative number 5 proposes to use stabilization treatment technology to reduce the mobility of the contaminants. This treatment technology will not reduce the toxicity or volume of this waste. However,this is not a critical factor for this Alternative since the waste is being transported off-site for disposal.

4. SHORT-TERM EFFECTIVENESS

Short-term effectiveness involves the period of time needed to achieve protection and any adverse impacts on human health and the environment that may be posed during the construction and implementation period until clean up goals are achieved.

Of the Alternatives evaluated, in-place containment of the contaminated soils, as proposed in alternatives number 2 and 3 would provide the highest degree of short-term protection. Short-term protection is high because the implementation of in place containment does not involve excavation or other soil disturbing activities which could potentially affect site workers. Also, short term risks would remain at current levels for Alternative 1 since no soil disturbing activities would occur.

Alternatives involving excavation and subsequent treatment of the contaminated soils, as proposed in Alternatives 4 and 5, would provide increased opportunity for exposure to contaminants by site workers. Worker exposure could potentially occur through direct contact, ingestion or inhalation of contaminated soil particles. Since this Site is in a rural setting, the surrounding community would be at too great a distance to be affected by airborne contaminants. Measures could be implemented which would eliminate the potential for worker exposure during soil disturbing and handling activities. These measures include use of protective clothing, appropriate breathing apparatus and effective dust control.

5. LONG-TERM EFFECTIVENESS AND PERMANENCE

Long-term effectiveness and permanence refers to the ability of a remedy to maintain reliable protection of human health and the environment over time once clean up goals have been met.

Alternative 1 is not a permanent remedy. It would not be effective over the long-term in protecting public health. Under this alternative, the contaminants would not be inhibited from leaching into the ground water and migrating from the Site. Finally, this alternative would not prevent human exposure via direct contact.

The use of capping technology as proposed in Alternatives 2 and 3 would serve to minimize the risk of human exposure via direct contact. However, the degree of effectiveness in protecting humans from exposure is a function of the cap's integrity. Overtime both the RCRA cap and the soil cap will erode. As the cap erodes, the degree of protectiveness will continue to decline. Also, as the cap erodes the amount of water able to filter through the waste will increase. This will cause leachate to be generated which will increase the potential for the contaminants to migrate into the ground water. Furthermore, a cap will require long-term maintainence and portions of it will need to be replaced in the future. A soil cap is not expected to last as long as the RCRA cap. Thus, the degree of protectivesness afforded by a soil cap is not as great as that of a RCRA cap. Finally, the use of access restrictions as is proposed in both Alternatives 2 and 3 will minimize the likelihood of the cap from being disturbed.

The stabilization of the contaminated soil in conjunction with a RCRA cap, a liner and a leachate collection system as proposed in Alternative 4, will provide the highest degree of protectiveness and reliability when compared to Alternative 1, 2 or 3 . The use of a RCRA cap in conjunction with stabilization treatment will significantly reduce the liklihood for ground water contamination. If water should filter through the cap, then the stabilized waste should inhibit the generation of the leachate. The use of stabilization treatment will also significantly reduce the potential for the contaminants to migrate from the Site. Furthermore, the use of a RCRA cap will minimze the threat to the

human health via direct contact. Finally, assuming current Site conditions do not change appreciably, stabilization technology evaluated by itself, can be expected to be a long-term solution with a high degree of permanence.

Alternative 5 would provide the highest degree of protectiveness and reliability of all of the remedies evaluated in the Feasibility Study Report. This is the only Alternative that would completely eliminate all short or long-term risks to the public health or the environment. Also, post-closure care such as future corrective action, long-term ground water monitoring or access and deed restrictions would be unnecessary under this alternative.

6. IMPLEMENTABILITY

Implementation addresses the technical and administrative feasibility of a remedy, including the availability of materials and services needed to implement the chosen solution.

The implementation criterion does not apply to the no action alternative since no remedial measures would be taken.

The implementability of in-place containment as is proposed in Alternatives 2 and 3 is affected by technical considerations such as availability of suitable cover materials (rock, clay, soil and seed for acclimated vegetation). The remedial design would take site characteristics into account when developing the cap blueprint. Both of these Alternatives propose using technologies which could be readily implemented at the Site.

Both Alternatives 4 and 5 have proposed the use of stabilization technology to treat the contaminated soil. Stabilization technology has been identified in the Land Ban Disposal Regulations of August 8, 1988, as being the bDAT for the treatment of wastewater sludges generated from electroplating operations. Since this is a proven technology, no technical difficulties are expected regarding its implementation. Also, firms which maintain the equipment and the skilled workers needed to implement this technology are available in the greater Des Moines area. Some difficulty may be encountered in locating a RCRA Subtitle C Landfill operator to accept the treated waste as is proposed in Alternative 5. No other administrative difficulties are expected regarding the implementation of this technology.

7. COST

CERCLA requires that the EPA select a cost-effective (not merely the lowest cost) alternative that protects human health and the environment and meets other requirements of the law. Alternative 2, 3 and 4 all have an initial capital cost which is lower than that for Alternative 5. However, the overall cost of each of these Alternatives, including long-term operation and maintenance and ground water monitoring, is at a level similar to that of Alternative 5. Furthermore, since contaminants would be left on-

site, for Alternatives 2, 3, and 4, future corrective action is a possibility, which could increase the cost of each alternative above that for Alternative 5.

The 30-year present worth costs of each alternative is presented in Table 7.

8. COMMUNITY ACCEPTANCE

This evaluation criteria addresses the concerns of the public regarding acceptance of a particular remedy.

The comments received indicate that the public is concerned about the costs of the proposed remedial Alternatives and who will pay these costs. In addition, the comments presented at the public meeting held on September 21, 1988 indicated that the public did not perceive the site as presenting any significant threat to the public health or the environemnt.

9. STATE ACCEPTANCE

The state acceptance criteria indicates whether, based on its review of the RI/FS and Proposed Plan, the State concurs with, opposes, or has no comment on the preferred alternative.

The State of Iowa informed the Agency in a letter dated August 8, 1988 that it agreed with the EPA's selection of the preferred remedy for the North Farm subsite.

X. **THE SELECTED REMEDY**

Based on the information available to evaluate the remedial options against the previously described criteria, Alternative 5 is selected as the preferred remedy for the North Farm subsite. This Alternative provides for the excavation of the contaminated soil within and around the disposal cell which contains cadmium concentration levels exceeding a health based action level of 13 mg/kg. The development of this number is discussed in Section 2.3 of the FS Study report and Section 6 of this document. Approximately 200 cubic yards of contaminated soil above the health-based action level of 13 mg/kg established for cadmium are believed to be present at the Site. The excavated soil will be treated using stabilization technology and stabilized to the extent that the leachate contaminant concentration, as measured using the Toxicity Characteristics Leaching Procedure, meets the standards specified in the Land Ban Disposal Regulations of August 8, 1988 for F006 nonwastewaters. These treatment standards are as follows:

Constituent	Treatment Standard
Cadmium	.066 mg/l
Total Chromium	5.2 mg/l
Lead	.51 mg/l
Nickel	.32 mg/l
Silver	.072 mg/l

Subsequent to treatment, the excavated soil would be disposed into a permitted RCRA Subtitle C disposal facility. The treatment process will be conducted either on or off-site. The excavated area would be backfilled and graded with clean soil to support a vegetative cover. This Alternative represents RCRA's Landfill Clean Closure Option as defined in 40 CFR Part 264, Subpart N. These provisions under RCRA provide that post-closure care such as future corrective action, long-term ground water monitoring or land and deed restrictions are unnecessary.

XI. RATIONALE FOR PREFERENCE

The selected remdedy is preferred over the other Alternatives because it provides the highest degree of protectiveness at a cost only moderately higher than the other Alternatives. This is the only Alternative evaluated that would completely eliminate all short and long-term risks to the public health and the environment. Furthermore, this is the only Alternative that would eliminate the need for post-closure care such as ground water monitoring, or land and deed use restrictions. Also, this is the only Alternative evaluated that would eliminate the possibility for future corrective action. Finally, this is the only Alternative evaluated that provides a permanent solution to the contaminant problem at the Site.

The remedy selected for implementation at the North Farm subsite is consistent with CERCLA, as amended by SARA and the National Contingency Plan; 40 CFR Part 300.

XII. STATUTORY DETERMINATION

Based upon the available information, the selected remedy satisfies the remedy selection requirements under CERCLA, as amended and the National Contingency Plan. The selected remedy at the Site is protective of public health and the environement, satisfied all applicable or relevant and appropriate environmental requirements and is cost effective. The Public Health Evaluation analysis has determined that treating soils within and around the disposal cell which contain cadmium concentration levels exceeding a health based action level of the 13 mg/kg will adequately protect the public health for unrestricted use.

GLOSSARY OF TERMS

ARARs - Applicable or Relevant and Appropriate Requirements refers to to the Federal and State requirements that a remedy selected by EPA must attain. These requirements may vary from site to site.

Ground Water - Underground water that fills pores in soils or opening in rocks to the point of saturation. Groundwater is often used as a source of drinking water for municipal or domestic wells.

Leachate - A liquid that has passed through wastes and contains some components of these wastes.

Solidification - A process used to reduce the mobility of liquid contaminants by mixing it with a material such as cement kiln dust in order to increase the ability to handle the waste and make the substance less likely to leach.

COMMUNITY RELATIONS RESPONSIVENESS SUMMARY

MIDWEST MANUFACTURING/NORTH FARM SUPERFUND SITE

NORTH FARM SUBSITE

KELLOGG, IOWA

This Responsiveness Summary presents the responses of the United States Environmental Protection Agency (EPA) to the comments received during the public comment period conducted as part of the remedy selection process for the North Farm subsite of the Midwest Manufacturing/North Farm Superfund site.

INTRODUCTION

On September 8, 1988, EPA announced the availability of its Proposed Plan for the remedial action at the North Farm subsite of the Midwest Manufacturing/North Farm Superfund site. Notice of the availability of the proposed plan and the administrative record upon which EPA intended to base its remedy selection decision was mailed to persons who had previously expressed an interest in this site and published in the Newton Daily News. This notice also requested the public's comments on the proposed plan and indicated the period during which public comments received by EPA would be considered in the decision-making process. A fact sheet in which the various remedial alternatives were described, including identification of a preferred alternative, was mailed with the notice.

A public meeting was held in Kellogg, Iowa, on September 21, 1988, to receive comments. Copies of the proposed plan and fact sheet were made available to persons attending the public meeting. A transcript was made of the public meeting. That transcript was consulted in preparation of this responsiveness summary. Copies of the transcript are available with the administrative records for public review.

PUBLIC COMMENTS

The comments received in on the Proposed Plan and EPA's response to these comments are set forth below.

The EPA received a number of comments relating to the cost of the remedial action alternatives considered for the Site. These comments generally fell into the following categories.

1. Is the proposed remedial action cost-effective or are there other remedial alternatives which might provide a more cost-effective remedial action at the site?

CERCLA requires the EPA select a cost-effective alternative (not merely that alternative having the lowest cost) which protects the human health and the environment, and meets the other requirements of the law. Alternatives 2, 3, and 4 all have

an initial captial cost which is lower than that for Alternative 5. However, the overall cost of each of these alternatives, including long-term operation and maintenance and ground water monitoring, is at a level similar to that of Alternative 5. Furthermore, since contaminants would be left on Site, for Alternatives 2, 3 and 4, future corrective action is a possibility which could increase the cost of each alternative above that for Alternative 5.

2. Some persons questioned the manner in which the cost estimates presented in the proposed plan were calculated, i.e., what costs are included in the estimates, were costs calculated on a site-specific basis or using national averages, and what is the potential range of the actual cost to implement the alternatives?

Cost projections were prepared on a site-specific basis for each alternative and are based on capital costs and operation and maintenance costs. The costs for operation and maintenance are based on 1988 dollars and projected for a period of 30 years. The costs as presented at the public meeting were for actual cleanup costs and did not include costs for the Remedial Investigation/Feasibility Study. The actual Site cleanup costs may range from -30% to +50% variance between the cost estimates presented at the public meeting and the actual costs which would be incurred.

3. A number of comments were received regarding the issue of who pays for cleanup, including does EPA take into consideration who will pay for the remedy in selecting a remedial alternative, can EPA consider the economic impact on the responsible parties or the community as a whole if EPA seeks to have the responsible parties fund the response action, and can Superfund pay for the site cleanup costs without seeking cost recovery from the responsible parties if those parties cannot afford to pay for the remedial costs and can EPA hold parties liable even though their disposal of hazardous waste was proper, lawful, or specifically authorized by a regulatory agency at the time?.

While the cost effectiveness of the remedial action is a factor considered in the remedy selection process, except for questions of fund-balancing, i.e., in circumstances where the Superfund does not have sufficient monies available to fund a response action, the selection of the remedy does not consider who will pay for the remedy. Since we are not presently in a fund balancing situation, the question of who pays for the remedy is not a deciding factor in the remedy selection process.

Even though the question of who pays for the remedy is not a deciding factor in the remedy selection process, the number and nature of the comments made on this subject indicates that it is the key concern of the public. Therefore, some further explanation of EPA's general policies and practices with regard to use of the Superfund and cost recovery seem in order. The general policy of CERCLA is that the persons responsible for

creation of the problem are responsible for paying for remedying the problem. CERCLA provides that the persons who generated the wastes, arranged for disposal of the wastes and owned the site at which the wastes were disposed of are responsible for the costs of cleaning up the site. Liability for response costs under CERCLA do not depend upon compliance or noncompliance with past regulatory requirements.

Under CERCLA's special notice procedure, the persons believed to be responsible are given the opportunity to undertake or finance the response action before the Superfund monies are used to do so. If the responsible parties are unwilling or unable to finance or implement the remedy, EPA would consider spending Superfund monies to do so. When Superfund monies are used to finance the remedy, it is the policy of EPA to seek recovery of those response costs from the responsible parties. It is the policy of EPA to seek full recovery of all response costs.

4. Will the costs regarding this Site be available to the public?

If the EPA undertakes the response action, then the cost is public information. If a private party undertakes the action, then even the EPA may not know the costs.

5. Will this work be up for public bid or has it already been contracted for?

If the EPA undertakes the work, two mechanisms would be available. One mechanism is to have the U.S. Army Corps of Engineer manage the work. In this case, the Corps of Engineers would go through their normal bid advertising and contracting procedures via the Commerce Business Daily (CBD).

If the EPA retains responsibility for the project, then the work would be bid through the CBD or implemented through one of the Agency's Superfund contracts. To a certain extent, those contractors will try to use local labor and subcontractors if they are qualified and available.

6. What is the relationship of EPA with the Iowa Department of Natural Resources with respect to the cleanup of this Site? Did the State offer to pay for the cleanup of the Site?

The Remedial Investigation Report, the Draft Feasibility Study, the Proposed Plan Document, and other pertinent documents used to select the preferred remedy have been promptly shared with the Iowa Department of Natural Resources; EPA has consulted with the Department on the selection of this remedy from among the alternatives considered, as well as all other major decisions made with respect to the Site. The Iowa Department of Natural Resources has not been called upon to assist in funding either the Remedial Investigation or the cleanup, beyond the requirements imposed by CERCLA.

7. How will the community be notified of EPA's selection of the remedy to be implemented at the Site? Will the EPA conduct a public meeting in order to discuss the party or parties who will held responsible for the cost of the cleanup?

Subsequent to the signing of the Record of Decision, the public will be given notice in the Newton Daily News of the remedy selected.

No public meeting will be held to discuss the possible liability of any party, although any lawsuit which might be brought would, of course, be a matter of public record.

8. Is the purpose of the trust fund in the Superfund program to cleanup hazardous waste sites, and what is the source of the trust funds administered by Superfund?

Superfund was established by Congress as a trust fund under the Comprehensive Environmental Response, Compensation and Liability Act. Money for Superfund in large part comes from taxes paid by companies which produce various chemical substances, from costs (including fines and punitive damages) recovered from responsible parties, and, to a lesser, extent, from Government general revenue. The trust funds are to be used if an immediate response is required, whether or not there is a possibility of recovery from responsible parties; or where no responsible party with adequate funds to pay for investigation and cleanup can be found. If Superfund money is used for cleanup then the EPA is bound by statute to attempt to recover these monies from responsible parties. These include waste generators, waste haulers, landowners, etc.

9. How did EPA learn of the existence of this Site? How was this Site selected for investigation and cleanup from the sites listed on the National Priorities List? Why was there a delay between the identification of the Site and the initiation of response activities?

This Site came to the attention of EPA through the National Pollution Discharge Elimination System (NPDES) program.

The National Priorities List ("NPL") establishes a system to determine the order in which hazardous waste sites listed are dealt with under the Superfund program. Each site is investigated and cleaned up in the order established as funds and resources become available. EPA undertook its investigation of this Site as soon as it was able to do so in light of its ranking, the contamination reported, the hazards involved, and the funds available for investigation and cleanup.

10. In view of the leaching potential of the colloidal clay encountered at the Site, what has been discovered concerning the movement of the contamination into the surrounding areas? How

many other sites on the NPL have hazardous wastes and soil characteristics similar to that found at the North Farm subsite?

The EPA's investigation has demonstrated that the contaminants at the Site have not migrated far from the confines of the disposal cell.

EPA does not have information available which would allow a determination of how many sites across the country have colloidal clay as part of the geologic structure.

11. If the hazardous material is removed to another site, how can the public be assured that such action will not create another hazardous waste/Superfund site?

First, the excavated soil will be treated using stabilization technology, which has been identified in the Land-Ban Disposal Regulations dated August 8, 1988, as meeting the Best Demonstrated Available Technology standard for treating sludges generated from electroplating operations. This will reduce the mobility of the hazardous substances in the waste material. Second, the treated waste will be deposited into an EPA-authorized landfill designed to accept hazardous wastes. This landfill will be equipped with double liners and a leachate collection system. These engineering features in conjunction with the stabilization technology give the best assurance known today that the contaminants will not migrate from the Site.

During the Public meeting several persons voiced their concern regarding EPA's intentions to remediate the North Farm subsite. These persons felt that requirement of CERCLA, which requires the potential responsible parties (PRPs) to pay the cleanup costs, would place an economic hardship on both the PRPs and the community. Provided below are several of the major comments given by members of the community.

State Representative Dennis Black:

You know, we just came through a farm credit crisis in Iowa, we are in the midst of a drought. Farm production, needless to say, isn't what was anticipated. And if, in fact, the cost of the removal of 70 cubic yards would be $210,000, then I think we can see another Iowa farmer biting the dust. I'm sure Mr. Brown does not have the money and we would see another bankruptcy.

We have in the case of Kellogg, a small community. Probably, I'm sure, the largest employer in the community would be Smith-Jones. And I would question very much whether their balance sheet would allow them the encumbrance of this amount of money. Once again we are dealing with, I'm sure, future unemployment.

Now, those are the facts. These are the things that we have to deal with. I understand full well that you folks representing EPA have rules that you are responsible for and have to carry out. But it bothers me very much to think that we are looking at such a cost for such a small site as was indicated by the lady, one of the smallest, and who pays the bill; the farmer, Smith-Jones? I just don't think it will happen that way.

Mayor Eva Henning:

I worked at this factory for 20 years and I never heard anyone around here comment on any of the --well, that dump site out there, for years. In fact, I do not think I have ever heard anybody and we have already had this project out there with the lagoon that has cost over $500,000, and I can't see the company down here being taken right now. And the farmers, just as Representative Black said, there is just too many people. This is all we have got here in this town. There is nothing else in this town, only the elevator, and I see no reason why at this time, nobody has said anything about this water and where it comes from Bear Creek and down Coon Creek and on into Skunk River. I don't know where they are getting off saying all at once this here community has to be taken down the drain, because that is what it is going to amount to.

We have already seen that some of it has went out of here, and there will be more if this keeps on. And I just can't see the factory and the community saying that this is going to be a very hazardous--it's going to be a hazardous project if it costs way into the---well, it will end up about a million dollars, I imagine, before it is over with.

And I do not approve of the whole thing at all until things get in better shape around here and through the country and for the farmers and everybody. And I don't believe I have ever heard any farmer say anything about this here contamination. Someone may speak up and say they did, but I haven't never seen any and I've not heard any.

And that is the reason why I think we are biting off more than we can chew now right here in the community. And the people are taxed now to pieces over this other deal. So, I'm afraid that if this comes to a standstill and we all have to give up what we've made, why, I think it's going to be a bad deal. That's it.

David Sandeen, President of Smith-Jones Midwest Division

I could probably stay here all night and ask questions, but I would just like to make a couple of comments and clarify a couple of things.

First of all, I agree with Representative Black that we are not scientist or engineers, so my argument is not what should we do with that site. But I am doggoned surely convinced I want to walk away knowing who is going to be paying for that.

I think that there has been some misrepresentation of numbers, too, and you might be able to clarify this for me. The number going around here tonight is $221,000 to clean up. I do not believe that includes the cost of the remedial investigation and the feasibility study, which numbers were given to me and could be in the neighborhood of another quarter-million dollars.

Also not included in that cost is Site Number 2, which we are not discussing tonight for some other reasons, but could have duplicate or identical costs. So, we are looking at a total cost, if in fact the costs for the remedial investigation and feasibility study are not included in that for the North Farm site for in the neighborhood of half million dollars.

I've got some people here, friends and employees, that would like to know who is going to pay for that.

And also, a comment was made by Mr. Shiel earlier this evening that the party that created the problem should be the one that would clean it up. as far as I am personally concerned, I work with EPA and IDEQ for ten years, on the water treatment facility and disposing of the sludge.

We did everything that we were supposed to do for both those Agencies. And as far as I am concerned, they are the ones that created the sludge pond. They are the ones that suggested hoe we do it, they approved our plans and we did it according to their guidelines.

I guess the question I would have is what do you anticipate

the entire bill to be including the feasibility study, the remedial investigation, over and above the $221,000 we are talking about?

Gary Young, President of GMP Local 74:

Mr. Young provided the Agency with a written comment on behalf of the Membership of GMP Local 74. Mr. Young expressed concern that if Smith-Jones, Inc., is forced to pay for the clean up of the North Farm subsite, the financial drain on the company would threaten the security of the jobs it provides to the community.

Community Petition

The Agency received a petition signed by approximately 190 members of the community requesting that EPA 's Superfund program finance the clean up of the North Farm subsite. It is assumed that the concern of those signing the petition, which represent approximately thirty per cent of the community, are also concerned with the economic effect on the community if its major employer is compelled to undertake or finance the cleanup.

MIDWEST MANUFACTURING/NORTH FARM
OPERABLE UNIT #1
SUPERFUND SITE
KELLOGG, IOWA

ADMINISTRATIVE RECORD INDEX

U.S ENVIRONMENTAL PROTECTION AGENCY
CONTRACT NO. 68-01-7351 (TES IV)
WORK ASSIGNMENT NO. 570

SEPTEMBER 1988

INTRODUCTION

This Index of Documents describes documents considered by the U.S. Environmental Protection Agency in determining response actions with respect to the Midwest Manufacturing/North Farm Operable Unit #1, Superfund Site in Kellogg, Iowa.

Administrative Record documents for this site are indexed chronologically in ascending order, with any undated documents following all dated entries. This sorting scheme corresponds to the arrangement of documents in the Administrative Record itself. In cases where documents contain only partial dates, the Index of Documents defaults to the first month of the year and/or first day of the first month, as appropriate.

Most of the documents described in the Administrative Record Index of Documents are present in hard copy from in the Index itself; those marked "Yes" under the REFERENCE field have been incorporated in the Administrative Record by reference, and may be made available for review at the U.S. EPA Region VII office during regular business hours.

Administrative Record documents are contained in classification file folders. The beginning and ending dates of each category are as follows:

* File 1 - 03/22/77 to 12/28/83
* File 2 - 06/03/87 to 01/07/88
* File 3 - 01/13/88 to 08/22/88
* File 4 - 07/15/88 to 09/08/88

* Guidance Documents: .

1.) "Treatment Technology Briefs, Alternatives to Hazardous Waste Landfills"
2.) "Superfund Public Health Evaluation Manual"
3.) "Final Report, Guidance Manual: Cost Estimates for Closure and Post Closure Plans (Subparts G and H), Volume III - Unit Costs"
4.) "A Compemdium of Technologies Used in the Treatment of Hazardous Wastes"
5.) "Chapter 7 - Present Worth Method of Comparing Alternatives"
6.) Cost Document
7.) Cost Factors Document

DOCUMENT DATE: 03/22/77
NUMBER OF PAGES: 9
AUTHOR:
COMPANY/AGENCY: SVAN, Region VII, U.S.EPA
RECIPIENT:
DOCUMENT TYPE: Water Section Report
REFERENCE: No
DOCUMENT TITLE: "Report of Inspection, Kellogg, Iowa, Midwest Mfg. Co., A Division of Smith - Jones Inc. "

DOCUMENT DATE: 12/08/80
NUMBER OF PAGES: 3
AUTHOR: Striker, Jim, Environmental Specialist
COMPANY/AGENCY: Iowa Department of Environmental Quality
RECIPIENT: David Sandeen, General Manager, Smith - Jones Inc.
DOCUMENT TYPE: Correspondence
REFERENCE: No
DOCUMENT TITLE: Letter re: Attached Report of Investigation Regarding Waste Treatment Facility Inspection Facility No. 50-00-1-02

DOCUMENT DATE: 11/16/81
NUMBER OF PAGES: 2
AUTHOR: Keffer, William, Chief
COMPANY/AGENCY: SVAN, EP&R, Region VII, U.S. EPA
RECIPIENT: Robert L. Morby, Chief, ARHM/HAZM Region VII, U.S. EPA
DOCUMENT TYPE: Memorandum
REFERENCE: No
DOCUMENT TITLE: Memorandum re: Followup Inspection for Midwest Mfg., Kellogg, Iowa

DOCUMENT DATE: 04/28/82
NUMBER OF PAGES: 98
AUTHOR: Jackson, Dave
COMPANY/AGENCY: Ecology & Environment
RECIPIENT: William Keffer, U.S. EPA
DOCUMENT TYPE: Plan
REFERENCE: No
DOCUMENT TITLE: Field Investigation of Uncontrolled Hazardous Waste Sites, Site Investigation Plan for Midwest MFG., Kellogg, Iowa.

DOCUMENT DATE: 08/04/82
NUMBER OF PAGES: 4
AUTHOR: Jackson, David
COMPANY/AGENCY: U.S. EPA
RECIPIENT:
DOCUMENT TYPE: Potential Hazardous Waste Site ID
REFERENCE: No
DOCUMENT TITLE: Potential Hazardous Waste Site Identification and Preliminary Assessment of Midwest Mfg.

DOCUMENT DATE: 08/04/82
NUMBER OF PAGES: 4
AUTHOR: Jackson, David
COMPANY/AGENCY: U.S. EPA
RECIPIENT:
DOCUMENT TYPE: Preliminary Assessment
REFERENCE: No
DOCUMENT TITLE: Potential Hazardous Waste Site Identification and Preliminary Assessment of Midwest Mfg.

DOCUMENT DATE: 08/04/82
NUMBER OF PAGES: 31
AUTHOR: Hensley, Charles P.
COMPANY/AGENCY: Region VII, U.S. EPA
RECIPIENT: Keffer, Region VII, U.S. EPA
DOCUMENT TYPE: Laboratory Data
REFERENCE: Yes
DOCUMENT TITLE: "Transmittal of Laboratory Data - Midwest Manufacturing."

DOCUMENT DATE: 08/04/82
NUMBER OF PAGES: 10
AUTHOR: Jackson, David
COMPANY/AGENCY: U.S. EPA
RECIPIENT:
DOCUMENT TYPE: Inspection Report
REFERENCE: No
DOCUMENT TITLE: "Potential Hazardous Waste Site, Site Inspection Report on Midwest Mfg., North Farm Site"

DOCUMENT DATE: 08/04/82
NUMBER OF PAGES: 12
AUTHOR: Jackson, David, Chemist
COMPANY/AGENCY: Ecology & Environment, Inc.
RECIPIENT: U.S. EPA
DOCUMENT TYPE: Site Inspection Report
REFERENCE: No
DOCUMENT TITLE: Potential Hazardous Waste Site, Site Inspection Report

DOCUMENT DATE: 08/04/82
NUMBER OF PAGES: 1
AUTHOR: Jackson, David
COMPANY/AGENCY: Ecology & Environment, Inc.
RECIPIENT: U.S. EPA
DOCUMENT TYPE: Site Identification
REFERENCE: No
DOCUMENT TITLE: Potential Hazardous Waste Site, Site Identification

DOCUMENT DATE: 10/15/82
NUMBER OF PAGES: 1
AUTHOR: Costello, J. Patrick
COMPANY/AGENCY: U.S. EPA
RECIPIENT:
DOCUMENT TYPE: Site Indentification
REFERENCE: No
DOCUMENT TITLE: Potential Hazardous Waste Site Identification of the North Farm Site

DOCUMENT DATE: 10/15/82
NUMBER OF PAGES: 1
AUTHOR: Costello, J. Patrick
COMPANY/AGENCY:
RECIPIENT: U.S. EPA
DOCUMENT TYPE: Site Identification
REFERENCE: No
DOCUMENT TITLE: Potential Hazardous Waste Site Identification 10/15/82 Form

DOCUMENT DATE: 01/28/83
NUMBER OF PAGES: 26
AUTHOR: Roberts, Mark
COMPANY/AGENCY: Region VII, REM/FIT, Ecology & Environment, Inc.
RECIPIENT:
DOCUMENT TYPE: Report
REFERENCE: No
DOCUMENT TITLE: "Field Investigations of Uncontrolled Hazardous Waste Sites, Proposed Work Plan for Midwest Manufacturing Company, Kellogg, Iowa"

DOCUMENT DATE: 02/08/83
NUMBER OF PAGES: 22
AUTHOR: Keffer, Willian J., Chief
COMPANY/AGENCY: EP&R, ENSV, Region VII, U.S. EPA
RECIPIENT:
DOCUMENT TYPE: Memorandum
REFERENCE: No
DOCUMENT TITLE: Memorandum re: Attached Proposed Work Plan for the North Farm Site, Kellogg, Iowa

DOCUMENT DATE: 04/13/83
NUMBER OF PAGES: 1
AUTHOR: Roberts, Mark
COMPANY/AGENCY: Ecology & Environment
RECIPIENT: Bill Keffer, Chief, EP&R/ENSV Region VII, U.S. EPA
DOCUMENT TYPE: Memorandum
REFERENCE: No
DOCUMENT TITLE: Memorandum re: "Status Report for the North Farm Site, Kellogg, Iowa, TDD#R-07-8301-05"

DOCUMENT DATE: 12/28/83
NUMBER OF PAGES: 54
AUTHOR: Roberts, Mark
COMPANY/AGENCY: Region VII, REM/FIT, Ecology & Environment
RECIPIENT: William Keffer, RPO, U.S. EPA
DOCUMENT TYPE: Report
REFERENCE: No
DOCUMENT TITLE: "Field Investigation of Uncontrolled Hazardous Waste Sites - FIT Project"

DOCUMENT DATE: 06/03/87
NUMBER OF PAGES: 13
AUTHOR: Dunkle, L.
COMPANY/AGENCY: Camp Dresser & McKee, Inc.
RECIPIENT:
DOCUMENT TYPE: Site Health and Safety Plan Form
REFERENCE: No
DOCUMENT TITLE: Re: Midwest Mfg., North Farm Site (with Attached Maps of the Site)

DOCUMENT DATE: 07/01/87
NUMBER OF PAGES: 5
AUTHOR: Wagoner, David A., Director
COMPANY/AGENCY: WSTM, Region VII, U.S. EPA
RECIPIENT: Larry J. Wilson, Director, Iowa Department of Natural Resources
DOCUMENT TYPE: Correspondence
REFERENCE: No
DOCUMENT TITLE: Letter re: Request for ARAR's

DOCUMENT DATE: 07/29/87
NUMBER OF PAGES: 7
AUTHOR: Stokes, Allan F.
COMPANY/AGENCY: Iowa Department of Natural Resources
RECIPIENT: Dana Trugley, SPFD, Region VII, U.S. EPA
DOCUMENT TYPE: Correspondence
REFERENCE: No
DOCUMENT TITLE: Response Letter re: Iowa's Response to Agency Request for ARAR's.

DOCUMENT DATE: 09/23/87
NUMBER OF PAGES: 39
AUTHOR: Takade, Dennis Y., Ph.D., Site Manager
COMPANY/AGENCY: Woodward-Clyde Consultants
RECIPIENT: Robert L. Morby, Regional Project Officer, SPFD, Region VII, U.S. EPA
DOCUMENT TYPE: Correspondence and Report
REFERENCE: No
DOCUMENT TITLE: Letter re: Attached, "Site Evaluation and Remedial Investigation/Feasibility Study (RI/FS), Scoping Document, North Farm Site" with Attached Errata Sheet, Dated 9-23-87)

DOCUMENT DATE: 09/29/87
NUMBER OF PAGES: 9
AUTHOR: Kay, Morris, Regional Administrator
COMPANY/AGENCY: Region VII, U.S. EPA
RECIPIENT: Merl and Gerdena Brown
DOCUMENT TYPE: Special Notice Letter/104e Letter
REFERENCE: No
DOCUMENT TITLE: Letter re: Notification of Potential Liability under CERCLA for the North Farms Site and a Request to Finance and Conduct a RI/FS

DOCUMENT DATE: 09/29/87
NUMBER OF PAGES: 9
AUTHOR: Kay, Morris, Regional Administrator
COMPANY/AGENCY: Region VII, U.S. EPA
RECIPIENT: Dave Sandeen, President, Smith-Jones, Inc., Midwest Division
DOCUMENT TYPE: Special Notice Letter/104e Letter
REFERENCE: No
DOCUMENT TITLE: Letter re: Notification of Potential Liability Under CERCLA for the Midwest Plant Site and a Request to Finance and Conduct a RI/FS

DOCUMENT DATE: 10/27/87
NUMBER OF PAGES: 4
AUTHOR: Merl Brown
COMPANY/AGENCY: Midwest Mfg. Co.
RECIPIENT: Dana Trugley, Region VII, U.S. EPA
DOCUMENT TYPE: Correspondence
REFERENCE: No
DOCUMENT TITLE: Letter re: Response to the Agency's 104e Letter of 9/29/87

DOCUMENT DATE: 11/13/87
NUMBER OF PAGES: 16
AUTHOR: Sandeen, David, President
COMPANY/AGENCY: Midwest Mfg. Co.
RECIPIENT: Dana Trugley, Region VII, U.S. EPA
DOCUMENT TYPE: Correspondence
REFERENCE: No
DOCUMENT TITLE: Letter re: Response to the Agency's 104e Letter of 9/29/87.

DOCUMENT DATE: 12/23/87
NUMBER OF PAGES: 2
AUTHOR: Wagoner, David A., Director
COMPANY/AGENCY: WSTM, Region VII, U.S. EPA
RECIPIENT: Merl Brown
DOCUMENT TYPE: Correspondence
REFERENCE: No
DOCUMENT TITLE: Letter re: Agency's Response to Merl Browns letter of 9/29/87.

DOCUMENT DATE: 12/23/87
NUMBER OF PAGES: 10
AUTHOR: Wagoner, David A., Director
COMPANY/AGENCY: WSTM
RECIPIENT: David E. Sandeen, President, Smith-Jones, Inc., Midwest Division
DOCUMENT TYPE: Correspondence
REFERENCE: No
DOCUMENT TITLE: Letter re: "Smith-Jones, Inc., Midwest Site and North Farm Site"

DOCUMENT DATE: 12/29/87
NUMBER OF PAGES: 6
AUTHOR: Sandeen, David E., President
COMPANY/AGENCY: Midwest Mfg., Co., Smith-Jones, Inc.
RECIPIENT: Dana Trugley, SPFD, Region VII, U.S. EPA
DOCUMENT TYPE: Correspondence
REFERENCE: No
DOCUMENT TITLE: Letter re: Response to Issues Presented in Correspondence from U.S. EPA Dated, 12/23/87

DOCUMENT DATE: 01/05/88
NUMBER OF PAGES: 1
AUTHOR: Brown, Merl G.
COMPANY/AGENCY:
RECIPIENT: Region VII, U.S. EPA
DOCUMENT TYPE: Correspondence
REFERENCE: No
DOCUMENT TITLE: Letter re: Submittal of Ellis Clauson's Address

DOCUMENT DATE: 01/07/88
NUMBER OF PAGES: 87
AUTHOR: Kiefer, Michael L., P.E., REM II, Region VII Manager
COMPANY/AGENCY: Camp, Dresser & McKee, Inc.
RECIPIENT:
DOCUMENT TYPE: Report
REFERENCE: No
DOCUMENT TITLE: "Work Plan for RI/FS at the Smith-Jones/Midwest Division Site, North Farm and Plant Areas, Kellogg, Iowa, Volume I, (Technical)"

DOCUMENT DATE: 01/13/88
NUMBER OF PAGES: 92
AUTHOR:
COMPANY/AGENCY: Camp, Dresser & McKee, Inc.
RECIPIENT:
DOCUMENT TYPE: Report
REFERENCE: No
DOCUMENT TITLE: "Project Operations Plan/Quality Assurance Project Plan for the RI/FS, Smith-Jones/Midwest Division Site, Kellogg, Iowa"

DOCUMENT DATE: 01/19/88
NUMBER OF PAGES: 1
AUTHOR: Trugley, Dana
COMPANY/AGENCY: REMD, SPFD, WSTM
RECIPIENT: Calvin Walter, Iowa Department of Natural Resources
DOCUMENT TYPE: Correspondence
REFERENCE: No
DOCUMENT TITLE: Letter re: "Midwest (Smith-Jones), North Farm Superfund Site"

DOCUMENT DATE: 01/28/88
NUMBER OF PAGES: 1
AUTHOR: Wolter, Calvin
COMPANY/AGENCY: Abandoned/Uncontrolled Sites Section, Iowa Department of Natural Resources
RECIPIENT: Dana Trugley, SPFD, Region VII, U.S. EPA
DOCUMENT TYPE: Correspondence
REFERENCE: No
DOCUMENT TITLE: Letter re: Comments Regarding Project Operations/Quality Assurance Project Plan for Midwest MFG.

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DOCUMENT DATE: 03/11/88
NUMBER OF PAGES: 4
AUTHOR: Wagner, David A., Director
COMPANY/AGENCY: WSTM
RECIPIENT: David E. Sandeen, President, Midwest Manufacturing Company
DOCUMENT TYPE: Correspondence
REFERENCE: No
DOCUMENT TITLE: Letter re: Response to Saith-Jones Decision Not to Let U.S. EPA Investigate the Release of Hazardous Substances on Property

DOCUMENT DATE: 03/15/88
NUMBER OF PAGES: 3
AUTHOR: Trugley, Dana
COMPANY/AGENCY: REMD, SPFD, WSTM
RECIPIENT: Merl Brown, Merl Brown Property (North Farm Site)
DOCUMENT TYPE: Access Letter
REFERENCE: No
DOCUMENT TITLE: Letter re: Request of Consent for U.S. EPA to Access Property to Perform Environmential Investigations

DOCUMENT DATE: 06/16/88
NUMBER OF PAGES: 1
AUTHOR: Trugley, Dana
COMPANY/AGENCY: Remedial Section, SPFD, WSTM
RECIPIENT: Calvin Walter, Iowa Department of Natural Resources
DOCUMENT TYPE: Correspondence
REFERENCE: No
DOCUMENT TITLE: Letter re: Transmittal Letter for the "Draft Copy of the Remedial Investigation (RI) Report"

DOCUMENT DATE: 06/23/88
NUMBER OF PAGES: 2
AUTHOR: Walter, Calvin
COMPANY/AGENCY: Solid Waste Section, Iowa Department of Natural Resources
RECIPIENT: Dana Trugley, Region VII, U.S. EPA
DOCUMENT TYPE: Correspondence
REFERENCE: No
DOCUMENT TITLE: Letter re: Response to the Draft Copy of the Remedial Investigation Report

DOCUMENT DATE: 07/13/88
NUMBER OF PAGES: 25
AUTHOR: Kaleikau, Robert M., Community Relations Specialist, et.al.
COMPANY/AGENCY: Woodward-Clyde Consultants
RECIPIENT: Dana Trugley, Regional Project Manager, Superfund Branch, Region VII, U.S. EPA
DOCUMENT TYPE: Community Relations Plan
REFERENCE: No
DOCUMENT TITLE: "Final Community Relations Plan, Midwest Manufacturing/North Farm Site - Kellogg, Iowa" (Date Located on Page 4 of 25)

DOCUMENT DATE: 07/15/88
NUMBER OF PAGES: 300
AUTHOR:
COMPANY/AGENCY: REM II, Woodward-Clyde Consultants
RECIPIENT:
DOCUMENT TYPE: Final Draft RI Report
REFERENCE: No
DOCUMENT TITLE: "Final Draft Remedial Investigation Report for the Midwest Manufacturing/North Farm Site, North Farm Operable Unit, Kellogg, Iowa"

DOCUMENT DATE: 07/18/88
NUMBER OF PAGES: 1
AUTHOR: Trugley, Dana L.
COMPANY/AGENCY: REMD, SPFD, WSTM
RECIPIENT: Calvin Walter, Iowa Department of Natural Resources
DOCUMENT TYPE: Correspondence
REFERENCE: No
DOCUMENT TITLE: Letter re: Request of Comments on Draft Feasibility Study

DOCUMENT DATE: 08/11/88
NUMBER OF PAGES: 1
AUTHOR: Preston, Morris, Supervisor,
COMPANY/AGENCY: Solid Waste Section, Iowa Department of Natural Resources
RECIPIENT: Dana Trugley, Region VII, U.S. EPA
DOCUMENT TYPE: Correspondence
REFERENCE: No
DOCUMENT TITLE: Letter re: Review of the Draft FS for the North Farm Site in Kellogg, Iowa

A

DOCUMENT DATE: 08/22/88
NUMBER OF PAGES: 2
AUTHOR: Wolter, Calvin
COMPANY/AGENCY: Solid Waste Section, Iowa Department of Natural Resources
RECIPIENT: Dana Trugley, Region VII, U.S. EPA
DOCUMENT TYPE: Correspondence
REFERENCE: No
DOCUMENT TITLE: Letter re: Review of the Proposed Plan for the North Farm Operable Unit in Kellogg, Iowa

DOCUMENT DATE: 09/07/88
NUMBER OF PAGES: 100
AUTHOR:
COMPANY/AGENCY: REM II, Woodward-Clyde Consultants
RECIPIENT:
DOCUMENT TYPE: Final Draft FS Report
REFERENCE: No
DOCUMENT TITLE: "Final Draft Feasibility Study Report for Midwest Manufacturing/North Farm Site, North Farm Operable Unit, Kellogg, Iowa"

DOCUMENT DATE: 09/08/88
NUMBER OF PAGES: 22
AUTHOR:
COMPANY/AGENCY: Region VII, U.S. EPA
RECIPIENT:
DOCUMENT TYPE: Proposed Plan
REFERENCE: No
DOCUMENT TITLE: Proposed Plan for the Midwest Manufacturing/North Farm Site, North Farm Operable Unit, Kellogg, Iowa

STATE OF IOWA

TERRY E. BRANSTAD, GOVERNOR

DEPARTMENT OF NATURAL RESOURCES
LARRY J. WILSON, DIRECTOR

August 11, 1988

RECEIVED
AUG 19 1988
REMD SECTION

Ms. Dana Trugley
USEPA Region VII
726 Minnesota Avenue
Kansas City, Kansas 66101

Dear Dana:

Thank you for allowing the Iowa Department of Natural Resources to review the draft copy of the Feasibility Study for the North Farm site at Kellogg, Iowa. Although the site poses no increased risk to the general population under current land use conditions, the state feels that the site presents an undesirable situation and should be cleaned up. Therefore, the state agrees with the EPA selection of Alternative 6 as the preferred remedial action; treatment of the sludge and contaminated soil at an off-site treatment facility and disposal at the treatment vendor's controlled disposal facility.

However, the State also feels that before the final remedial selection is made both the North Farm site and the Midwest Manufacturing plant site should be evaluated together since they were proposed as one site. The preferred remedial alternative for the plant site may be different from the one for the North Farm site and a combination of the two or a totally different alternative may be preferred when both sites are looked at together. Therefore, the State would prefer that the Record of Decision for the North Farm site not be finalized until the Remedial Investigation/Feasibility Study for the Midwest Manufacturing plant site is completed so that the remedial alternatives for the two sites could be compared.

If we can be of further assistance on this project, please contact us.

Sincerely,

Morris L Preston

MORRIS PRESTON, SUPERVISOR
SOLID WASTE SECTION

MP:am-M222-AEM.12

TABLE 1

REMEDIAL INVESTIGATION RESULTS

METALS IN THE WASTE MATERIAL ABOVE BACKGROUND CONCENTRATIONS

USEPA Sample No.	REM II Sample No.	Depth From Surface (feet)	Aluminum (mg/kg)	Barium (mg/kg)	Beryllium (mg/kg)	Cadmium (mg/kg)	Calcium (mg/kg)	Chromium (mg/kg)
T09A1016	NFS-1	2.1-3.0		100		730	41,000	35
T09A1017	NFS-1	3.0-4.0		81		6.1		
T09A1017D	NFS-1	3.0-4.0		81	0.45	5.2	2700	
T09A1018	NFS-1	4.0-4.9		110	0.49	1.7		
T09A1019	NFS-2	1.0-2.1		90	0.50	430	12,000	21
T09A1020	NFS-2	1.0-2.1	7800	95	0.49	570	16,000	25
T09A1021	NFS-5	2.2-3.0		98	0.48	830	4500	12
T09A1021D	NFS-5	2.2-3.0	7500	98	0.47	670	5200	
T09A1022	NFS-5	3.0-4.0		73	0.52	20	2300	
T09A1023	NFS-5	3.0-4.0	7400	84	0.56	28	2200	
T09A1024	NFS-7	2.7-3.1	9100	96	0.61	62	4500	14
T09A1025	NFS-7	2.7-3.1	7900	97	0.54	69	4700	14
T09A1026	NFS-9	1.33-1.67		76		660	27,000	26
T09A1027	NFS-9	1.33-1.67		100	0.48	820	31,000	32
T09A1028	NFS-1	2.1-4.9		97		250	11,000	16
T09A1028D	NFS-1	2.1-4.9		99		76	5300	
T09A1031	NFS-1	4.0-4.9		99	0.53	1.1		
T09A1031D	NFS-1	4.0-4.9		140	0.51	4.3	3700	
T09A1040	NFB-3*	2.5-3.5	8400	93	0.47	230	2200	
BACKGROUND CONCENTRATION			7200	65	0.44	0.67	2100	11

NOTE: mg/kg = milligrams per kilogram

TABLE 1
(Continued)

REMEDIAL INVESTIGATIONS RESULTS

METALS IN THE WASTE MATERIAL ABOVE BACKGROUND CONCENTRATIONS

USEPA Sample No.	REM II Sample No.	Depth From Surface (feet)	Cobalt (mg/kg)	Copper (mg/kg)	Iron (mg/kg)	Lead (mg/kg)	Magnesium (mg/kg)	Manganese (mg/kg)
T09A1016	NFS-1	2.1-3.0	5.3	120	19,000	38	4000	390
T09A1017	NFS-1	3.0-4.0						270
T09A1017D	NFS-1	3.0-4.0						210
T09A1018	NFS-1	4.0-4.9						490
T09A1019	NFS-2	1.0-2.1	6.1	58	18,000	19	2100	190
T09A1020	NFS-2	1.0-2.1	6.4	61	19,000	22	2300	230
T09A1021	NFS-5	2.2-3.0	5.2	40	16,000	18	1900	210
T09A1021D	NFS-5	2.2-3.0	5.5	47		17	1900	220
T09A1022	NFS-5	3.0-4.0	8.3		16,000	10		210
T09A1023	NFS-5	3.0-4.0	7.1		17,000			250
T09A1024	NFS-7	2.7-3.1	6.8	21	17,000	11		150
T09A1025	NFS-7	2.7-3.1	6.3	21	17,000	11	1700	230
T09A1026	NFS-9	1.33-1.67	5.3	84	18,000	32	2200	250
T09A1027	NFS-9	1.33-1.67	7.5	100	23,000	44	2500	400
T09A1028	NFS-1	2.1-4.9		38		16	1600	480
T09A1028D	NFS-1	2.1-4.9	4.9	22		11	1400	520
T09A1031	NFS-1	4.0-4.9	6.5		16,000	11		380
T09A1031D	NFS-1	4.0-4.9	6.6			9.1		690
T09A1040	NFB-3*	2.5-3.5				10	1400	270
BACKGROUND CONCENTRATION			4.7	13	15,000	8.6	1300	120

NOTE: mg/kg = milligrams per kilogram

TABLE 1
(Continued)

REMEDIAL INVESTIGATION RESULTS

METALS IN THE WASTE MATERIAL ABOVE BACKGROUND CONCENTRATIONS

USEPA Sample No.	REM II Sample No.	Depth From Surface (feet)	Molybdenum (mg/kg)	Nickel (mg/kg)	Potassium (mg/kg)	Sodium (mg/kg)	Vanadium (mg/kg)	Zinc (mg/kg)
T09A1016	NFS-1	2.1-3.0	6.3	190	860	1100		500
T09A1017	NFS-1	3.0-4.0		13		1200		
T09A1017D	NFS-1	3.0-4.0		12		1600		
T09A1018	NFS-1	4.0-4.9		13		2500		
T09A1019	NFS-2	1.0-2.1	6.7	120	1000	740		240
T09A1020	NFS-2	1.0-2.1	7.3	150	1100	880		360
T09A1021	NFS-5	2.2-3.0	6.0	14	880	2500		74
T09A1021D	NFS-5	2.2-3.0	5.9	13	910	2300		78
T09A1022	NFS-5	3.0-4.0		17	790	1500		38
T09A1023	NFS-5	3.0-4.0	6.2	15	760	2000	29	33
T09A1024	NFS-7	2.7-3.1	7.1	31	940	690	30	77
T09A1025	NFS-7	2.7-3.1	6.4	28	870	650		77
T09A1026	NFS-9	1.33-1.67	6.0	240	810	760		570
T09A1027	NFS-9	1.33-1.67	7.6	320	760	860		740
T09A1028	NFS-1	2.1-4.9		61		1400		180
T09A1028D	NFS-1	2.1-4.9		37		1300		92
T09A1031	NFS-1	4.0-4.9		14		1300		34
T09A1031D	NFS-1	4.0-4.9		16		1700		
T09A1040	NFB-3*	2.5-3.5		12	1200	2300		33
BACKGROUND CONCENTRATION			5.7	11	750	200	28	30

NOTE: mg/kg = milligrams per kilogram

TABLE 2

REMEDIAL INVESTIGATION RESULTS

CYANIDE CONCENTRATIONS IN THE WASTE MATERIAL

USEPA Sample No.	REM II Sample No.	Depth from Surface (feet)	Cyanide (mg/kg)
T09A1016	NFS-1	2.1-3.0	1.2
T09A1017	NFS-1	3.0-4.0	0.061
T09A1017D	NFS-1	3.0-4.0	0.035
T09A1018	NFS-1	4.0-4.9	ND(0.030)
T09A1019	NFS-2	1.0-2.1	0.40
T09A1020	NFS-2	1.0-2.1	NA
T09A1021	NFS-5	2.2-3.0	0.83
T09A1021D	NFS-5	2.2-3.0	0.44
T09A1022	NFS-5	3.0-4.0	0.045
T09A1023	NFS-5	3.0-4.0	NA
T09A1024	NFS-7	2.7-3.1	0.24
T09A1025	NFS-7	2.7-3.1	NA
T09A1026	NFS-9	1.33-1.67	0.27
T09A1027	NFS-9	1.33-1.67	NA
T09A1028	NFS-1	2.1-4.9	NA
T09A1028D	NFS-1	2.1-4.9	NA
T09A1040	NFB-3	2.5-3.5	0.25
BACKGROUND CONCENTRATION			0.058

NOTE: NA = Not analyzed.
mg/kg = milligrams per kilogram

TABLE 3

REMEDIAL INVESTIGATIONS RESULTS

METALS IN SOIL ABOVE BACKGROUND CONCENTRATIONS

USEPA Sample No.	REM II Sample No.	Depth from Surface (feet)	Aluminum (mg/kg)	Barium (mg/kg)	Beryllium (mg/kg)	Cadmium (mg/kg)	Calcium (mg/kg)	Chromium (mg/kg)
T09A1001	NFB-1	0-1	8000	99	0.48	62	3000	
T09A1002	NFB-1	6-7				0.99	2500	
T09A1002D	NFB-1	6-7		110	0.45		2400	
T09A1003	NFB-1	7-8		87		1.2	2700	
T09A1004	NFB-2	0-1	7600	110	0.45	77	2400	12
T09A1005	NFB-2	6-7		180	0.56	1.1		
T09A1006	NFB-2	7-8		230	0.46	0.97	2200	
T09A1007	NFB-3	0-1	8800	110		4.4	2600	
T09A1008	NFB-3	6-7		86	0.47		2200	
T09A1009	NFB-3	7-8						
T09A1009D	NFB-3	7-8						
T09A1010	NFB-4	0-1	8600	100	0.46	9.6	2200	
T09A1011	NFB-4	6-7		80	0.54	1.1	2300	
T09A1012	NFB-4	7-8		54	0.50	0.91	2400	
T09A1029	Seep	0-0.5	8200	89	0.48	20		
T09A1032	Seep	0-0.5	8900	91	0.45	22		
BACKGROUND CONCENTRATION			7200	65	0.44	0.67	2100	11

NOTE: mg/kg = milligrams per kilogram

TABLE 3
(Continued)

REMEDIAL INVESTIGATION RESULTS

METALS IN SOIL ABOVE BACKGROUND CONCENTRATIONS

USEPA Sample No.	REM II Sample No.	Depth from Surface (feet)	Cobalt (mg/kg)	Copper (mg/kg)	Iron (mg/kg)	Lead (mg/kg)	Magnesium (mg/kg)	Manganese (mg/kg)
T09A1001	NFB-1	0-1	6.1	14	16,000	9.5	1500	290
T09A1002	NFB-1	6-7						180
T09A1002D	NFB-1	6-7	4.8					210
T09A1003	NFB-1	7-8	7.6					550
T09A1004	NFB-2	0-1	6.8			12	1400	410
T09A1005	NFB-2	6-7	11		23,000			760
T09A1006	NFB-2	7-8	12		17,000			1300
T09A1007	NFB-3	0-1				9.3	1600	440
T09A1008	NFB-3	6-7	5.7		18,000	8.9		400
T09A1009	NFB-3	7-8						180
T09A1009D	NFB-3	7-8						130
T09A1010	NFB-4	0-1	5.9			8.6	1400	290
T09A1011	NFB-4	6-7	7.5	19	22,000	12		560
T09A1012	NFB-4	7-8	11	14	20,000	12		320
T09A1029	Seep	0-0.5	5.5					360
T09A1032	Seep	0-0.5	6.5					340
BACKGROUND CONCENTRATION			4.7	13	15,000	8.6	1300	120

NOTE: mg/kg = milligrams per kilogram

TABLE 3
(Continued)

REMEDIAL INVESTIGATION RESULTS

METALS IN SOIL ABOVE BACKGROUND CONCENTRATIONS

USEPA Sample No.	REM II Sample No.	Depth from Surface (feet)	Molybdenum (mg/kg)	Nickel (mg/kg)	Potassium (mg/kg)	Sodium (mg/kg)	Vanadium (mg/kg)	Zinc (mg/kg)
T09A1001	NFB-1	0-1		17		1200		41
T09A1002	NFB-1	6-7		12		250		
T09A1002D	NFB-1	6-7				250		33
T09A1003	NFB-1	7-8		21		260		45
T09A1004	NFB-2	0-1		16		400		44
T09A1005	NFB-2	6-7		21		330		33
T09A1006	NFB-2	7-8		19		350		33
T09A1007	NFB-3	0-1		12		2300		32
T09A1008	NFB-3	6-7		17		520		41
T09A1009	NFB-3	7-8				350		
T09A1009D	NFB-3	7-8				320		
T09A1010	NFB-4	0-1	6.2	14		510		32
T09A1011	NFB-4	6-7		17		420		37
T09A1012	NFB-4	7-8		16		400		44
T09A1029	Seep	0-0.5		12	800	860		
T09A1032	Seep	0-0.5	6.7		790	880		
BACKGROUND CONCENTRATION			5.7	11	750	200	28	30

NOTE: mg/kg = milligrams per kilogram

TABLE 4

REMEDIAL INVESTIGATIONS RESULTS

CYANIDE CONCENTRATIONS IN SOIL

USEPA Sample No.	REM II Sample No.	Depth from Surface (feet)	Cyanide (mg/kg)
T09A1001	NFB-1	0-1	0.14
T09A1002	NFB-1	6-7	0.21
T09A1002D	NFB-1	6-7	0.075
T09A1003	NFB-1	7-8	ND(0.030)
T09A1004	NFB-2	0-1	0.2
T09A1005	NFB-2	6-7	ND(0.030)
T09A1006	NFB-2	7-8	ND(0.030)
T09A1007	NFB-3	0-1	0.14
T09A1008	NFB-3	6-7	ND(0.030)
T09A1009	NFB-3	7-8	ND(0.030)
T09A1009D	NFB-3	7-8	ND(0.030)
T09A1010	NFB-4	0-1	0.22
T09A1011	NFB-4	6-7	ND(0.030)
T09A1012	NFB-4	7-8	ND(0.030)
T09A1013	NFB-5	0-1	0.058
T09A1014	NFB-5	6-7	ND(0.030)
T09A1015	NFB-5	7-8	ND(0.030)
T09A1029	Seep	0-0.5	0.12
BACKGROUND CONCENTRATION			0.058

NOTE: mg/kg = milligrams per kilogram

TABLE 5

CONTAMINANTS OF CONCERN/HEALTH RISK

GROUND WATER

Contaminant	Dissolved Concentration Level	Total Concentration Level	Hazard Index	Exposure Pathway	Health-Based Action Level (ug/l)
Cadmium	ND(5 ug/l)	19 ug/l	=1	Ingestion	18
Manganese	82-140 ug/l	520-2100 ug/l	<1	Ingestion	7700

WASTE MATERIAL/CONTAMINATED SOIL

Contaminant	Concentration Detected	Background Concentration	Hazard Index	Exposure Pathway	Health-Based Action Level (mg/kg)
Cadmium	0.67-830 mg/kg	0.67 mg/kg	>1	Ingestion of vegetables grown in contaminated soil	13
Cyanide	ND(0.030)-1.2 mg/kg	0.058 mg/kg	<1	Ingestion of vegetables grown in contaminated soil	N/A

NOTES: N/A = Not Applicable
mg/kg = milligrams per kilogram
ug/l = micrograms per liter

TABLE 6

POTENTIAL APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS

Contaminants of Concern - Ground Water

Contaminant	Upslope Well Concentration[1] (ug/l)	Concentration Range[1] (ug/l)	CWA[2,3]	Potency Factor	RCRA[4]	Reference Dose[5]	SDWA[6,7]	Health-Bas Action Lev (ug/l)
Dissolved Cadmium	ND(5.0)	ND(5.0)	WQC: 10 ug/l	N/A	N/A	0.0005 mg/kg/day	MCL: 10 ug/l	18
Total Cadmium	ND(5.0)	ND(5.0)-19	WQC: 10 ug/l	N/A	N/A	0.0005 mg/kg/day	MCL: 10 ug/l	
Dissolved Manganese	125	82-140	N/A	N/A	N/A	0.22 mg/ kg/day	SMCL: 50 ug/l	7700
Total Manganese	645	390-2100	N/A	N/A	N/A	0.22 mg/ kg/day	SMCL: 50 ug/l	7700

Contaminants of Concern - Soil

Contaminant	Background Concentration (mg/kg)	Concentration Range (mg/kg)	RCRA[4]	LDR[8,9]	Potency Factor	Reference Dose[5]	Health-Bas Action Lev (mg/kg)
Cadmium	0.67	0.67-830	1 mg/l in EP Toxicity extract defines a characteristic hazardous waste	0.066 mg/l in TCLP extract	N/A	0.0005 mg/ kg/day	13
Cyanide	0.058	ND(0.030)-1.2	N/A	N/A	N/A	0.02 mg/kg/ day	None

TABLE 6 (Continued)

POTENTIAL APPLICABLE OR RELEVANT AND
APPROPRIATE REQUIREMENTS

NOTES:

ND = Not detected with detection limit in parentheses.
N/A = Not applicable.

(1) Total metal concentrations are reported in parentheses below dissolved metal concentrations.

(2) CWA is the Clean Water Act.

(3) WQC refers to the water quality criteria for surface water.

(4) RCRA is the Resource Conservation and Recovery Act.

(5) The reference dose is acceptable daily intake for cadmium. Refer to Section 6.0 of the RI report.

(6) SDWA is the Safe Drinking Water Act.

(7) The notation MCL refers to the enforceable Maximum Contaminant Level. SMCL refers to the Secondary Maximum Contaminant Level, an aesthetic criteria established for finished water supplies.

(8) LDR is the Land Disposal Restrictions for First Third Scheduled Wastes.

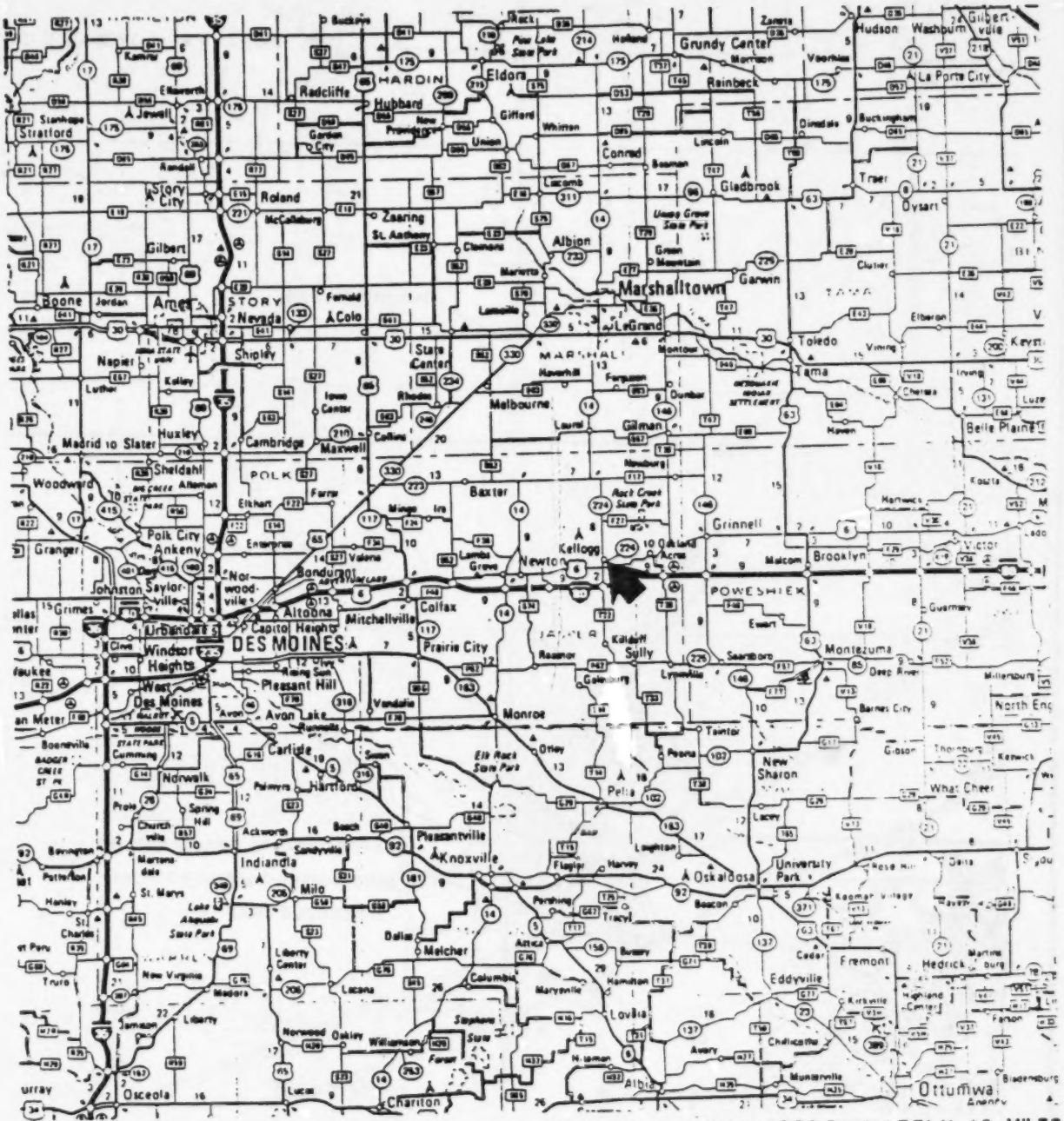
(9) For F006 wastes, the following constituents are part of the LDR treatment standards:

Cadmium	0.066 mg/l in TCLP extract
Total Chromium	5.2 mg/l in TCLP extract
Lead	0.51 mg/l in TCLP extract
Nickel	0.32 mg/l in TCLP extract
Silver	0.072 mg/l in TCLP extract

Table 7 REMEDIAL ALTERNATIVES

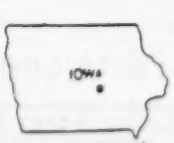
RITERIA	NO ACTION INCLUDES ACCESS & DEED RESTRICTIONS	RCRACAP AND GROUND WATER MONITORING	SOIL CAP AND GROUND WATER MONITORING	EXCAVATION, SOLIDIFICATION & DISPOSAL IN EXISTING DISPOSAL CELL/GROUND WATER MONITORING	EXCAVATION, SOLIDIFICATION AND OFFSITE DISPOSAL
verall Protection	None	SUBJECT TO CAP INTEGRITY			Reduce human health and environ. risk.
ompliance with ARARs	-- --	Yes	Yes	RCRA's LDRS & LCRs are applicable. RCRA's MTR are appropriate and relevant.	RCRA's LDRS are applicable. Disposal of waste into a RCRA subtitle C landfill. RCRA's LCCR are appli.
ong-term effectiveness	None	Portions of cap replacement possible. Potential for ground water contamination.	Portions of cap replacement possible. Potential for ground water contamination.	Portions of cap replacement possible. Reduced chance of ground water.	Yes
Reduction of toxicity, mobility or volume	No	No	No	Reduce mobility.	Reduce toxicity and mobility.
hort-term effectiveness	None	Eliminate human exposure via Direct Contact			Yes
lonths to implement	1	7	5	9	9
ost (Total Present Worth)	$500	$162,000	$132,000	$175,000	$140,000-$170,000
tate Acceptance	No	No	No	No	Yes
ommunity Acceptance	The community concern centered on the cost of remediation & who would pay.				

LCCR = Landfill Clean Closure Resolution
LDR = Land Disposal Regulations
LCR = Landfill Closure Resolution
MTR = Minimum Technology



SCALE: 1 INCH = APPROXIMATELY 13 MILES

NOTE : INFORMATION OBTAINED FROM AMERICAN AUTOMOBILE ASSOCIATION (AAA) MAP OF IOWA, NEBRASKA, 1986



SITE INDEX

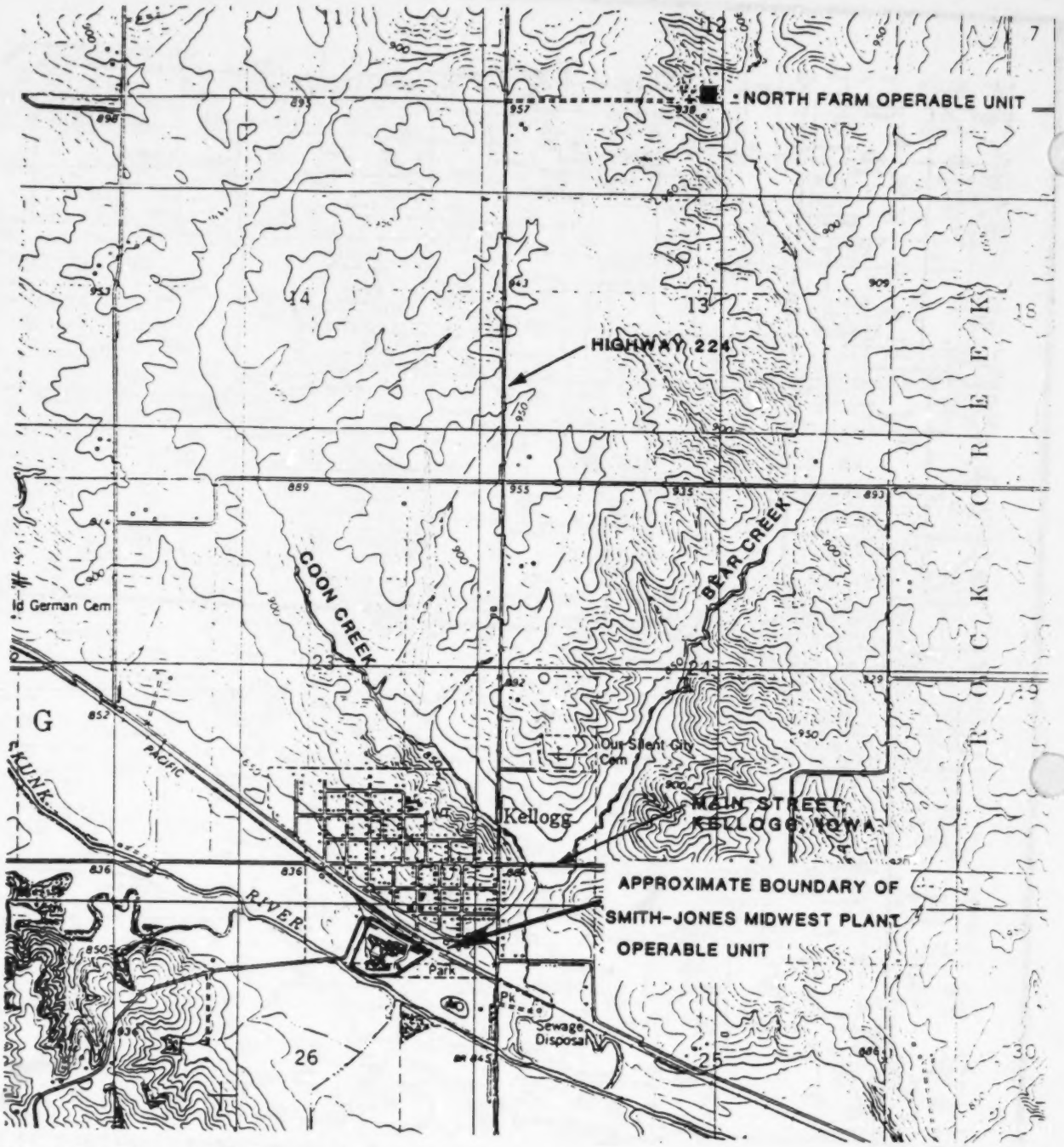
N

MIDWEST MANUFACTURING/NORTH FARM SITE
NORTH FARM OPERABLE UNIT
KELLOGG, IOWA

Woodward-Clyde Consultants
ENGINEERS, GEOLOGISTS, AND ENVIRONMENTAL SCIENTISTS

SITE VICINITY MAP

DRN BY SDC	DATE 12/23/87	PROJECT NO 395FR1	FIG NO 1-1
CHK'D BY [illegible]	DATE 6-14-88		



NOTE: INFORMATION OBTAINED FROM USGS KELLOGG, IOWA QUADRANGLE, 1980
T80N R18W

IOWA

QUADRANGLE LOCATION

N

0 2000 4000

scale feet

MIDWEST MANUFACTURING/NORTH FARM SITE
NORTH FARM OPERABLE UNIT
KELLOGG, IOWA

Woodward-Clyde Consultants
ENGINEERS, GEOLOGISTS, AND ENVIRONMENTAL SCIENTISTS

SITE LOCATION

DRN. BY SDC	DATE 12/24/87	PROJECT NO 395FR1	NO 1-2
CHK'D BY WB	DATE 6-14-88		

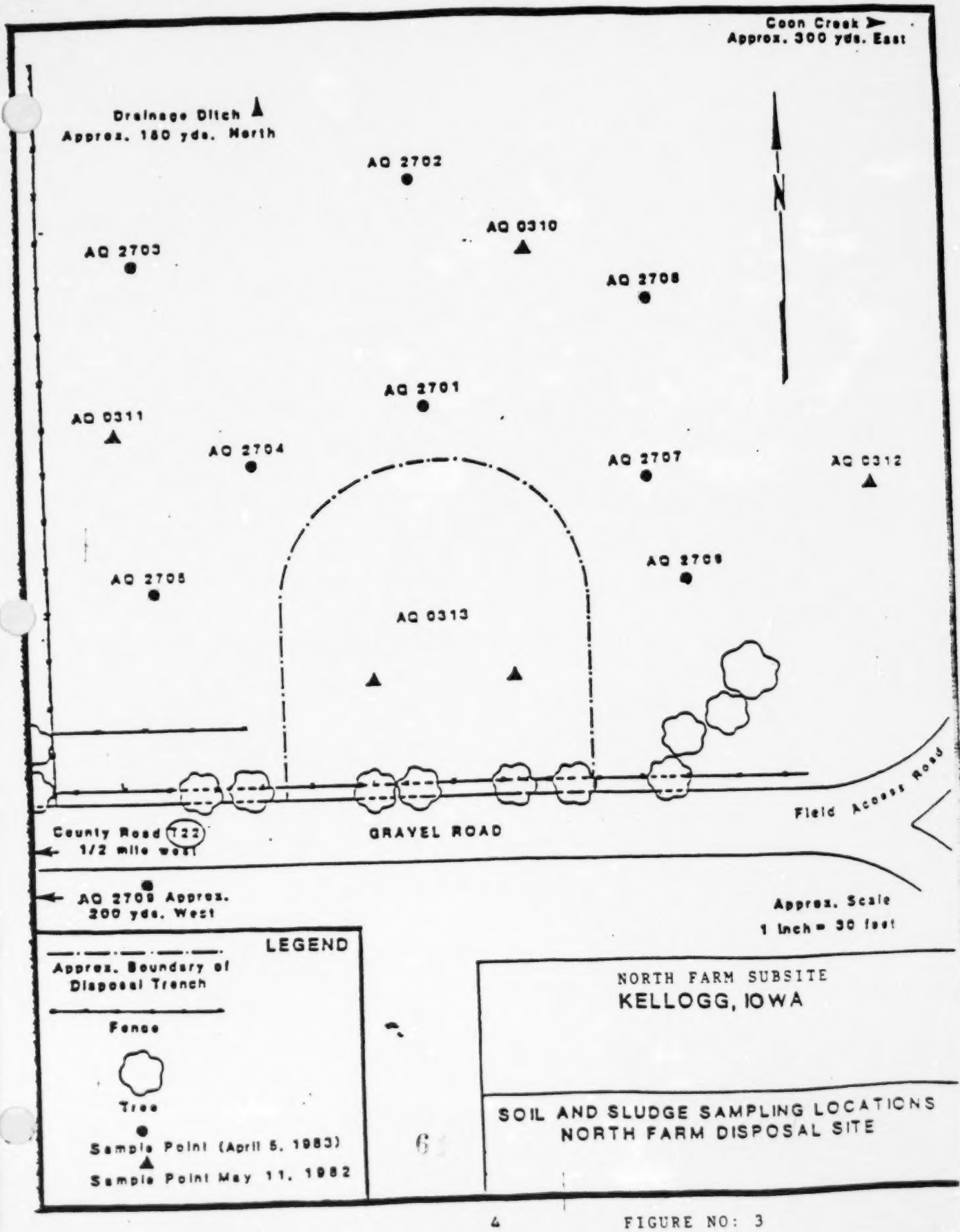
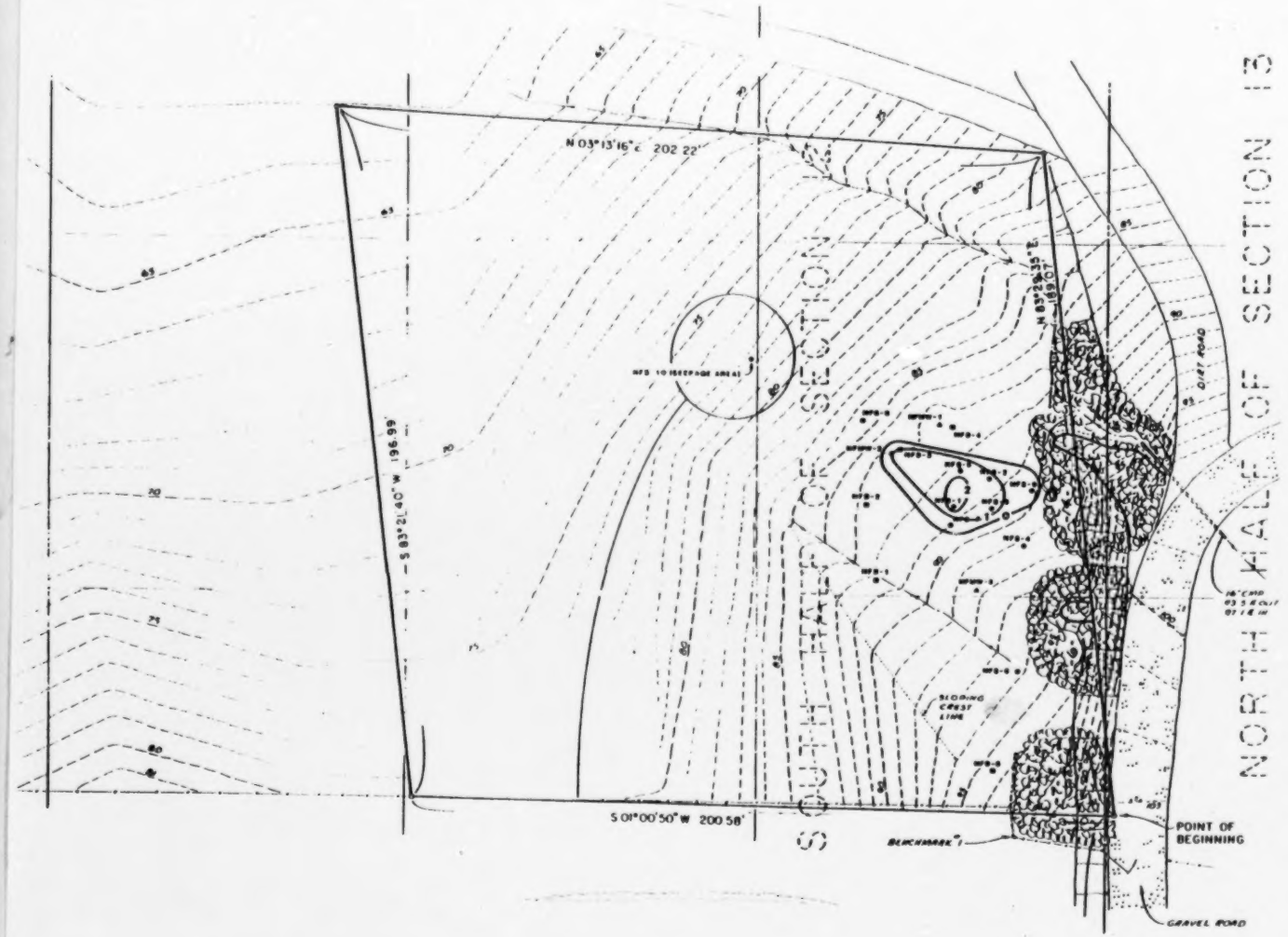

Coon Creek
Approx. 300 yds. East
Drainage Ditch
Approx. 150 yds. North
AQ 2702
AQ 0310
AQ 2703
AQ 2708
AQ 2701
AQ 0311
AQ 2704
AQ 2707
AQ 0312
AQ 2705
AQ 2709
AQ 0313
Field Access Road
County Road T22
1/2 mile west
GRAVEL ROAD
AQ 2709 Approx.
200 yds. West
Approx. Scale
1 inch = 30 feet
LEGEND
Approx. Boundary of Disposal Trench
Fence
Tree
Sample Point (April 5, 1983)
Sample Point May 11, 1982
NORTH FARM SUBSITE
KELLOGG, IOWA
SOIL AND SLUDGE SAMPLING LOCATIONS
NORTH FARM DISPOSAL SITE

FIGURE NO: 3



LEGEND

- MONUMENT FOUND
- 5/8" IRON ROD WITH CAP #20013 SET
- MONITORING WELL LOCATION (MW#-__)
- BORING LOCATION (MW8-__)
- SOIL SAMPLE LOCATION (MW1-__)
- FENCE LINE
- BOUNDARY LINE FOR NORTH FARM AREA SITE
- APPROXIMATE LIMITS OF SLUDGE DISPOSAL AREA
- HATCHED AREAS AND NUMBER OF SHEET
- CONTOUR LINE
- SECTION LINE
- C² SLUDGE THICKNESS CONTOUR WITH THICKNESS OF REPRESENTED SLUDGE LAYER NOTED IN FEET

NOTE:

RELATIVE ELEVATIONS ARE BASED ON AN ASSUMED ELEVATION OF 100.00 FEET. THE ASSUMED ELEVATION IS FOR A RAILROAD SPIKE LOCATED IN A FENCE POST AT BENCHMARK #1.

N

0 10 20 30 feet

MIDWEST MANUFACTURING/NORTH FARM SITE
NORTH FARM OPERABLE UNIT
KELLOGG, IOWA

Woodward-Clyde Consultants
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SLUDGE THICK[illegible] CONTOUR MAP

DRN BY JRR	DATE 7/15/[illegible]	PROJECT NO	FIG NO
CHK'D BY [illegible]	DATE 7-15-88	3935R1	4